

The MINING CONGRESS JOURNAL

Volume 11

JANUARY, 1925

No. 1

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Internal Revenue Decentralization Plan

A Department of Mines and Mining

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Legislative Review

The Nation's Viewpoint

Contributors

Hon. E. J. Henning, Hon. Samuel Shortridge,
H. Foster Bain, Wigginton E. Creed, William I.
Reilly, Gail Martin, George H. Cushing, E. A.
Holbrook.

The Old Reliable Mule



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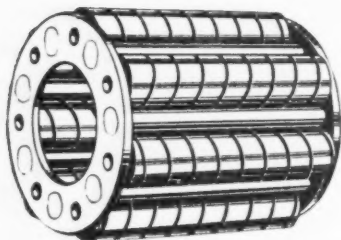
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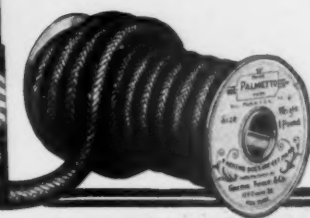
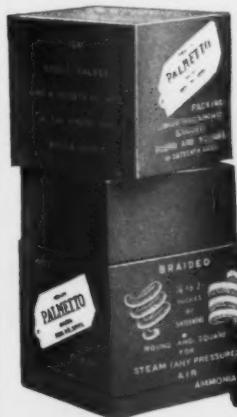
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THE MINING CONGRESS JOURNAL

JANUARY, 1925

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Published Every Month by the American Mining Congress, Washington, D. C.

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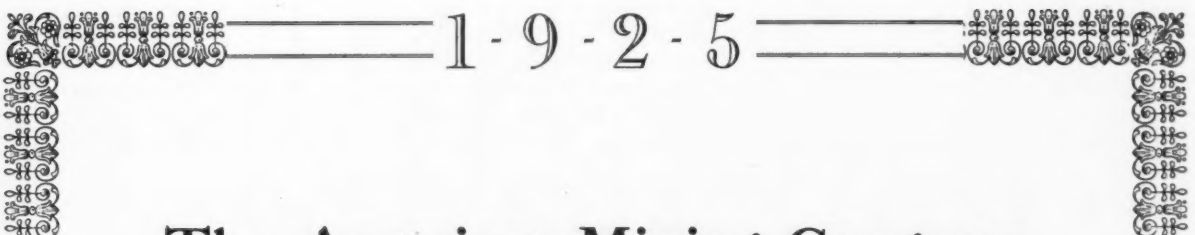
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Entered as Second Class Mail Matter January 30, 1915, at the Post Office at Washington, D. C.



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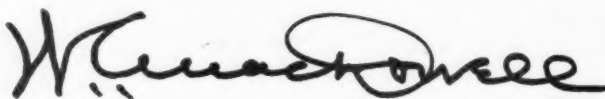
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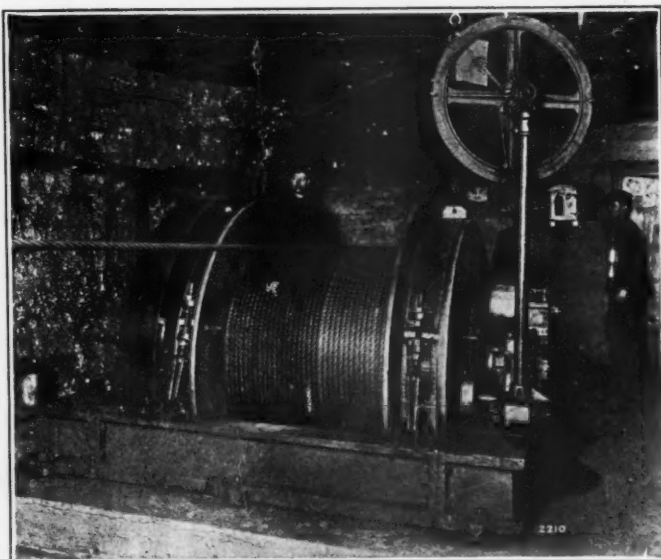
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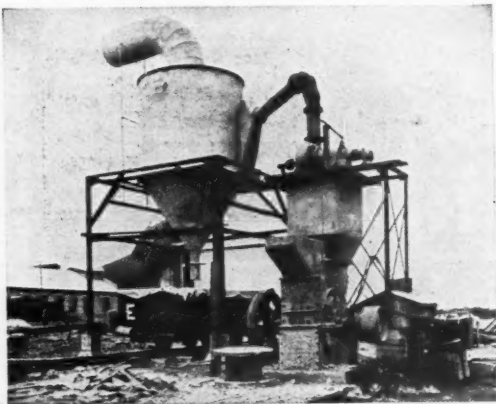
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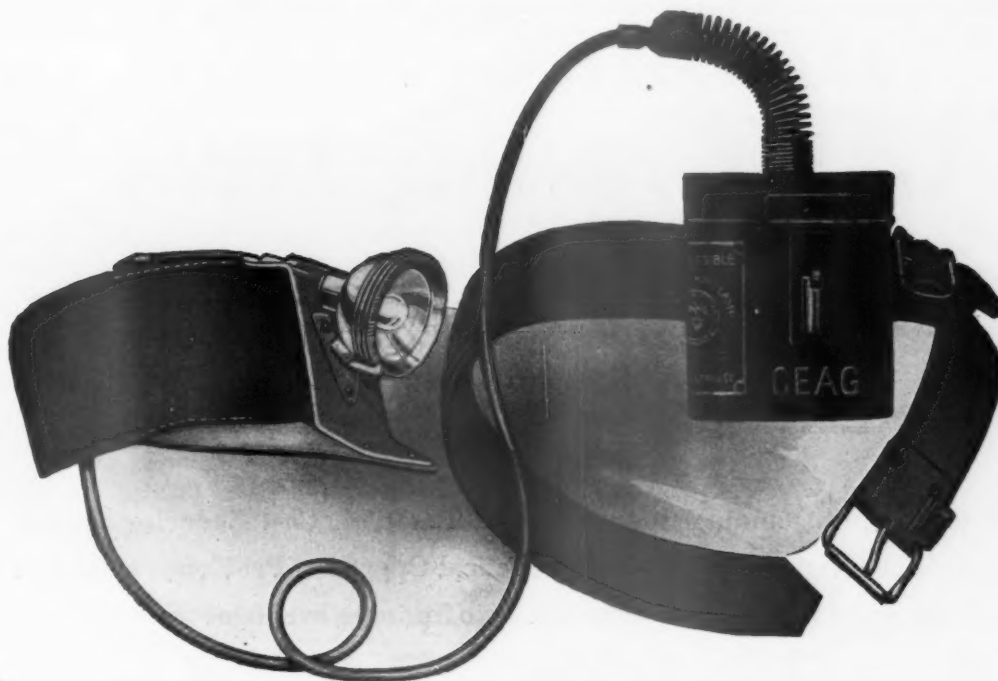
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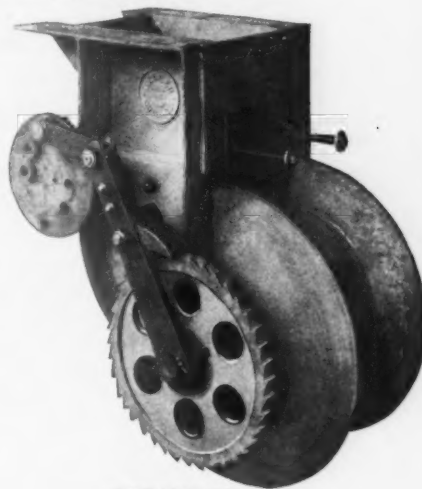


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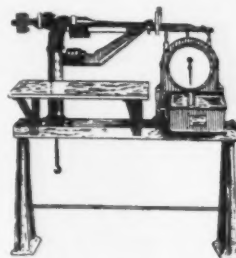
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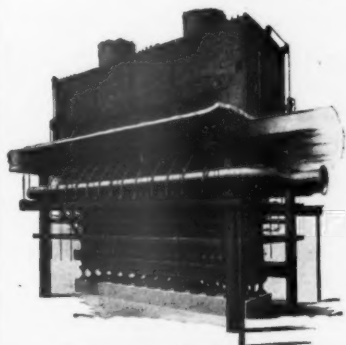
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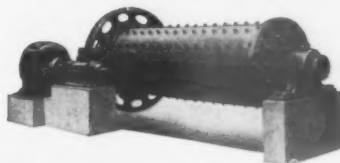
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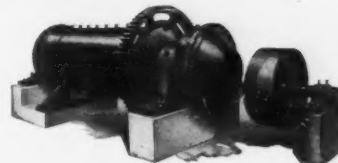
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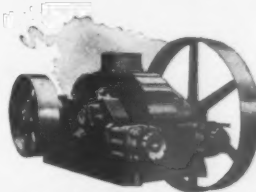
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THE AMERICAN MINING CONGRESS

MUNSEY BLDG., WASHINGTON, D. C.
Single Copies, \$0.30

VOLUME 11

JANUARY, 1925

NUMBER 1

Nineteen-Twenty-Five

The mining industry enters the new year with renewed hope and faith, and with undaunted spirit in its determination to fulfill its task for humanity—the furnishing of the basic raw materials upon which the prosperity of the Nation rests.

As the representative of all units of the mining industry The American Mining Congress wishes its family during this coming year that prosperity and success which its determination and optimism so justly deserve.

The Perspective

CONDITIONS are developing in the mining industry which indicate that an era of prosperity is approaching. This is evidenced by the healthy evolution of conditions that usually presage prosperity in an industry. Even in the gold and silver mining industries, the depression is less acute, and ultimate recovery of these essential industries seems assured.

Capital is coming out of the hiding places into which it was forced by oppressive taxation and radical tendencies in government. Interest rates are low. Taxes are becoming less burdensome. Freight rates are being gradually adjusted so as to permit the free movement of the basic raw materials, and transportation agencies generally are enjoying healthy conditions. Labor and supplies do not command a prohibitive premium. And markets, both at home and abroad, are becoming stabilized.

The attitude of the state and national governments toward the mining industry is sympathetic, and government interference with legitimate private enterprise is a less potent danger. And the crystallization of public sentiment against discriminatory legislation of any nature is seen in the defeat at the polls in the recent election of undesirable tax legislation. Radical tendencies everywhere are being curbed. It is fortunate for both the industry and the nation that the business of mining has not been encompassed by a multitude of artificial handicaps imposed by legislative authority.

Foremost among the defenders and protagonists of the mining industry, during the crucial period since the World War, has been the American Mining Congress. Throughout this period it has voiced optimism through the public press, through its officers, directors, and staff members, through its bulletin services, and through the columns of the MINING CONGRESS JOURNAL.

Its representatives have appeared before the committees of Congress, the executive departments of the Federal government, the Interstate Commerce Commission, the Federal Trade Commission, the meetings of bankers, manufacturers and railroad officials, and, in fact, before

every agency and on every occasion where the cause of the mining industry could be advanced and its interests promoted and protected.

In the matters of tariff protection, income taxation, railroad rates and labor relations, the work of the organization has been most effective. And for the promotion of efficiency and economy in mining operations, committees of the organization have labored for years on improved methods of mining practice, which have become standards, in order that production costs might be lowered to a point where higher labor and freight costs, and increased costs of supplies and equipment could be absorbed and operations maintained at a fair profit.

The period from which the mining industry is just emerging has been a period of convalescence. Many helpful lessons have been learned from the mistakes of the past. Among other things, the mining industry has learned that its several branches have many interests in common which cannot be protected unless these branches of the industry work together for the benefit of the industry as a whole, and at the same time enlist the moral support of other industries. It has learned also that the general public must have a proper understanding of its problems. The American Mining Congress has been a get-together medium as well as a medium through which the public could be informed of exact conditions prevailing in the industry.

In order that the mining industry may enjoy to the fullest extent the era of prosperity which seems imminent, there must be harmony and unity among its several branches; and the work of molding plans, methods, practices, and legislation that will lower production costs, taxes, and freight rates, and that will secure the maintenance of peaceful labor relations, must continue. To abandon any part of this work at this time would be exceedingly costly to the mining industry. Its continuation under the stimulation of healthy business conditions and industrial prosperity will produce lasting benefits.

REAL VALUE

EVERY month the Treasury Department issues under the authority of law a statement showing the value in United States money of the coinage of foreign countries. A comparison of these statistical values with exchange values is most interesting from a standpoint of international economics. Without exception the exchange value decreases from the statistical value in direct proportion to the inflation in the country of issue. This is, of course, obvious, but the inflation which causes the depression is of two kinds; inflation by paper currency, issued against insufficient reserves and inflation based on a lowered content of precious metal in subsidiary coinage.

Those countries whose subsidiary coinage has been depreciated from the recognized fineness of .925 suffer in any comparison of their coin to the dollar of the United States which is .925 fine.

The temporary and fleeting profit on the seigniorage in minting these issues of a lowered silver fineness is thus paid for through the nose. It would be immediately as profitable and permanently more profitable to these countries that silver coinage of all countries should maintain the recognized fineness which has been the acknowledged ratio of intrinsic to minted value for so many years. International exchange is never fooled by token money.

THE BETTER WAY

ADMITTING that nothing in human affairs has reached perfection, and that there is no divinity in any present method of procedure, Mr. James A. Emery recently discussed in a public address two ways of advancing toward what he terms a proper social goal. He said that when there comes an improvement in the physical surroundings of a people there is always possible a considerable advance in the social aspects of life.

But as to getting the social progress which corresponds with the material progress, he believed the methods differ, naturally, among the races. He called attention to the fact that the Anglo-Saxon race has always relied upon one method of procedure. That was, and is, to inspire the development of the individual character. In that way the progress comes from the heart of the nation out, and is, therefore, far more secure. In that method of procedure the Government becomes but the mirror which reflects the growth of the character of its individual citizens.

Some other races have not had a kind of people which, at all times, were so quickly responsive to the demands made upon their character development. Therefore, these other people did not build themselves up so quickly as the change in their material civilization would indicate. It has been necessary for an external force to draw them to the point where they are abreast of the times, so to speak. In those other races it has been necessary to impose social progress upon the people by an act of government. Therefore, the government, instead of being the mirror to reflect the progress of the people, has become the instrumentality to force social progress upon its citizens.

In other words, it is the old question of the republican form of government developed by the Anglo-Saxon, and the benevolent monarchy resorted to by peoples of different racial characteristics and habits. A peculiar development of recent years in government has been that, in even the Anglo-Saxon races, the effort has been

to impose social progress by an act of government. In such cases the politicians seem to be growing impatient over the slowness with which even the Anglo-Saxons respond to their responsibilities. While, in this country, we have had a people who are unusually keen to react to the finer demands upon character, an unusual effort has been made by a group in government to force social progress as a mandate from government itself. That is, we have been trying to impose the benevolent autocracy necessary in other nations upon what is strictly an Anglo-Saxon civilization.

For the Anglo-Saxon people, the system which relies upon an enlightened self-expression has proved infinitely the better of the two. Progress has been worked out with less friction under that method because people naturally are more responsive to that method. If trouble is going to be avoided, it seems necessary that our public officials be taught the essential character of our people and the conditions under which they develop most rapidly.

TAX BOARD AMENDS RULES

THE Board of Tax Appeals has amended its rules of admission to practice to meet the criticism of *THE MINING CONGRESS JOURNAL*, expressed editorially in October, that the Board should require a standard of qualifications "that will be a reasonable guarantee to taxpayers that the practitioner is competent" to handle tax matters.

Under the new rules, promulgated December 3, the Board requires the applicant "to be of good moral character and to possess the requisite qualifications to represent others," in addition to the requirement that the applicant must be an attorney or certified public accountant. The new rules also provide for denial of admission for suspension and for disbarment of "any person who does not possess the requisite qualifications to represent others, or is lacking in character, integrity or proper professional conduct." This amendment to the rules meets the suggestion of this Journal that those regularly admitted to practice should be "required to meet certain standards of efficiency and ethical conduct or be disbarred."

Although the Board has not officially lifted the bars to permit engineers to practice, it is believed that engineers who are skilled in the tax practice will find it possible to present the cases of their clients to the Board without difficulty or embarrassment. And it is probable that the Board, in due course, will find a way to amend the rules so as to eliminate the apparent discrimination against engineers who are specialists in income taxation.

The rulings of the Board have indicated a sympathetic understanding of the taxpayer's problems, and, in general, have been acceptable. The work of the Board thus far has more than justified its creation, and the prompt action of the Senate in confirming the twelve members appointed during the recess of Congress was a proper reward for faithful and unbiased efforts.

WHERE TAXES GO

FRANCE has omitted her war debt from the list of her liabilities. Her ambassador to the United States, who recently expressed the view that his government ultimately would pay, has been muzzled. Thus it appears that she expects to default. Meanwhile, taxpayers are being taxed \$160,000,000 annually to pay interest on the billions loaned France.

THE SIXTY-EIGHTH CONGRESS

THE second session of the Sixty-eighth Congress opened, as congressional sessions usually open, with prayer. A good beginning, whether anything else good transpires during the session or not. Still, it is hardly time to become pessimistic. The session, although it will be short-lived, is young.

The Sixty-eighth Congress sowed wild oats during its first session. It now shows signs of getting down to serious business. Many men have sowed wild oats in their youth, and then, at maturity, have settled down and have accomplished worth-while things. So may it be with this Congress. Anyhow, a settling down to business should result from the sobering effects of the recent election.

The present is not a proper time for politics to hold sway in the consideration of national problems. Too much is at stake. The people of the nation want sound-thinking and nonpartisan principles to govern legislation. Too much partisanship has been displayed in the recent conduct of the legislative branch of the Government. The people, by a great popular majority vote, expressed their disapproval. Therefore, this congressional session may be marked by an absence of partisan maneuvers, such as the orgy of fishing investigations that characterized the last session.

On the other hand, there is a group of recalcitrants who may seek to make trouble by filibustering in order to tie up necessary legislation, such as appropriation bills, and thus force the President to call a special session of the next Congress, notwithstanding the fact that after March 4 next their power to block legislation will be at an end. But whatever the outcome the people will not be deceived, and members of Congress who work diligently for the best interests of the country will be given due credit and will be rewarded accordingly in proper season.

The Sixty-eighth Congress has the opportunity to redeem itself, and its acknowledged leaders hope to make the most of the opportunity.

INCOME TAX UNIT HONEST

AFTER several months of investigation the Senate Select Committee on Investigation of the Bureau of Internal Revenue, headed by Senator Couzens, has found nothing of a serious or startling nature that would even indicate that there has been fraud, corruption or gross inefficiency in the administration of the income tax laws. This constitutes a most creditable record for the Income Tax Unit, and speaks well for the universal honesty and ethical conduct of the thousands of auditors and engineers who have examined returns and adjusted claims ranging from a few dollars in some cases to thousands, hundreds of thousands, and even millions of dollars in others.

The only tangible result of the investigation thus far has been a falling off in production, caused by the fact that officers and employees of the Unit have been taken from their routine duties to pull cases from the files and explain adjustments (which involved also in most cases the explaining of the law and regulations) for the committee's corps of investigators. An amusing sidelight on the investigation was involved in a statement by a subordinate official in one section of the Unit to the investigators, in which he enumerated all the cases in which he had been overruled, either by his immediate superiors, by the Committee on Appeals and Review, or by the solicitor, in favor of the taxpayer. He appar-

ently was obsessed with the theory that he could not have been wrong in ruling against the taxpayers in these cases, and that there must have been some crooked work somewhere above him.

The committee is now collating the data gathered by its agents and expects shortly to recommend changes in the law "that will improve the administrative methods and practices" of the Unit. Just what changes will be recommended have not been indicated. Taxpayers know fairly well what changes are needed, and will not look with favor upon recommendations that take away benefits that the law now affords without providing compensatory advantages.

THE APPROACHING CRISIS

WITHIN the month, an important body of coal miners in the Crow's Nest Pass region of British Columbia seceded from the Miners' Union to form a Canadian union. That which drove them to that action was the fact that the product of these union mines was in competition, not only with an abundance of non-Union coal, but with an abundance of oil, which in that market, is being used as fuel.

Almost simultaneously the last of the adherents of the Union in Kentucky and the greater portion of them in West Virginia severed their connections with it. Concurrently the report is spread that the Miners' Union, disturbed by the danger of disintegration, is planning an aggressive campaign to strengthen its lines. And, at the same time, there was heard a great deal of discussion of a possible—although not immediately probable—revision of the much discussed Jacksonville wage agreement.

The disintegration of the Union is a fact. The discontent with the Jacksonville agreement is universal. Some kind of action on the part of the Union to save itself is most likely; at least, it is logical. All this means only that in labor affairs in bituminous coal, we are approaching a crisis. And, out of any such crisis there usually comes a compromise line of action. Most concern, at the minute, is over the line which that compromise is most likely to take.

John L. Lewis, in his dealings with the Railroad Brotherhood, has indicated his most probable suggestion. That is that the miners would be willing to share the fortunes and misfortunes of the operators, if they were given a voice in the management of the mines. But, without a voice in the management, they can hardly be held responsible for prices and, therefore, should not be asked to accept anything other than a fixed wage as high as the industry can be forced to pay.

That issue has not definitely been raised in any formal coal conference. It is, rather, in that uncertain stage where it becomes a subject for quiet discussion, rather than for definite action. For that reason, it is possible here to do nothing more than to outline the issue and leave the discussion for a later time.

However, this much may, with propriety, be said. Exact justice might, conceivably, demand that the miners, or any other workers, should be allowed to share in that part of the profit for which they are directly responsible. However, it is no part of justice and is not even fair to the other factor involved to give to the miners, or any other class of workers, a part of the profits made possible by the actions of others—the manager, the salesman, the financier, or the manufacturer of machinery. The soundest principle that could be introduced into business would be to give the profit only to him who is responsible for it.

PROSPECTING PRIVILEGES PARAMOUNT

MINERAL claimants to public lands covered by stock-raising homestead entries and leases and railroad land grants have been subjected, in many instances, to expenses, litigation and indignities, by reason of opposition of nonmineral claimants, that have seriously interfered with the exploration and development of large areas in the West where prospecting and mining should be carried on without restriction.

Under the stock-raising homestead act of 1916 prospectors who made discoveries of mineral subsequent to the allowance of a homestead entry were not given the same rights that existed prior to the passage of that act. Before such discoveries could be developed and worked the act made it necessary for the prospector to contest the homestead entry.

In the sections of the country affected by this deplorable situation all surface deposits of any consequence have been discovered and worked, and the forcible ejection of prospectors from lands that give promise of rich mineral deposits, of which there are no surface indications, has seriously restricted prospecting and exploration, particularly in areas where valuable deposits of gold-bearing gravel and quartz undoubtedly lie buried deeply in the hills and mountains.

The American Mining Congress has sought continuously for several years to have this situation corrected by amendment of the rules governing nonmineral entries and claims; but, although the officials of the land department have been sympathetic and have issued regulations intended to protect the rights of the prospector, it now appears that a new law may be necessary to give adequate protection and relief to prospectors and mineral claimants.

The American Mining Congress division of public lands is thoroughly conversant with the facts. Letters were sent to several mineral claimants in California in 1923, advising these claimants that the fact must be established "that a valuable mineral has been found, or that the indications are such to show a reasonable probability that the mineral will be found in paying quantity," before the land department can rule under the law in favor of the prospector. Claimants also were requested to furnish full information concerning conditions that were detrimental to their interests. Upon receipt of the information, the matter was taken up again with the department, and the Commissioner of the General Land Office advised that the department would go as far as the law permits in protecting the rights of mineral claimants in cases where claims of nonmineral claimants were contested. The Commissioner stated that "the department has no reason for favoring nonmineral claimants over the rights or claims of the miners."

The fact is that, notwithstanding the efforts of the land department to eliminate causes for friction and to establish rules that protect the right to prospect, prospecting has been seriously restricted. It is therefore up to Congress to act. Existing laws reserve to the government the minerals that may be found in stock-raising lands, but does not reserve the right to prospect, or preserve the opportunity for prospecting under proper safeguards, without which the right reserved is worthless.

The law should provide that where conditions are such that prospectors, experienced in mining and pros-

pecting, are willing to undertake the laborious and expensive work of developing a location with the expectation of finding mineral in paying quantities, it will be presumed that the land is mineral in character until exploration and development work proves it otherwise or until it is abandoned. Unless some provision of this kind is enacted a large source of mineral discoveries that add to the economic and taxable wealth of the nation will disappear.

PERSONALITIES AND ISSUES

WHEN you look into another man's coffin you realize, finally, that all the while you have been dealing with two men, with the man himself and with the cause he represented. At the grave the cause, whatever it was, is absent. It has taken up lodgment with somebody who remains alive. Causes never attach themselves to departed leaders. Thus, at the grave, you are alone with the man himself.

Mr. Gompers was for so long a partisan of the labor movement that men saw in him nothing except his cause. And they were for him because they too espoused the cause of labor, or they hated him because they took the other side of the union question. But, quite aside from those prejudiced points of view, there was a personality which will continue to attract attention. In his time, important public men softened their tones and modified their manners when they talked to Gompers. But he was not always so signally favored. He had, at times, to deal with some men who were rough and direct; who spoke what they were and what they thought. It required considerable skill to parry the thrusts of men who softened their tones and, in the next instant, to parry the broadsword thrust of men of the lower order. It required even more than skill to remain at the head of a big movement for 43 years without showing a ruinous conflict of action and policy. It required even more skill to undertake, every year, to make one great step toward a goal and never to be tempted to deviate from a fixed program. Such a man proves himself to be a thinking machine. We must admire his skill even if we cannot often approve his method or even his cause.

William Green, who was international secretary-treasurer of the miners' union, has taken Gompers' place. Green is also a thinking machine, but of an entirely different sort. Intellectually, Green is quicker than Gompers, although perhaps not so wise or possibly so well educated. He is not endowed by nature with enduring patience or trained to stand, without outward resentment, the abuse which fell to the lot of Gompers. Mentally, Green can grasp instantly the full force and effect of any suggestion made by his opponents. His imagination will run instantly all the way around any proposal. But he lacks the resource to meet each emergency with an invention. That is so because he has been brought up among those who know of but two things in any labor relations—to demand something and to strike if it is denied. He may never grasp the idea, which was the essence of the success of Gompers, that if you have won what determines the wage you have won the wage. Gompers was forever fighting for conditions and principles, knowing that they were controlling. Green has been trained to fight for specific terms in a contract.

Because of this difference, the old American Federation of Labor was buried recently at Tarrytown, N. Y., and the next day a new sort of an organization was created with William Green at its head.

ELECTRIC POWER IN MINING*

Electric Power Is Closely Allied With The Mining Industry And Offers Great Possibilities In Future Development Of The Industry. But In Order That It May Be The Real Servant Of Industry It Joins With Mining In Protest Against Government Invasion Of Business

MINING came first in California. But our power industry owes a great debt to mining. It was from the mining engineers that we learned much of the design of dams, of reservoirs, of tunnels, of ditches and canals that hung to the eyebrows of our Sierras. It was from the mining engineers that we learned much in respect of construction methods and the moving of earth and the transportation of materials in rough and difficult country. It was to mining that we looked for our first business. The mining industry constituted our first customers, and on our own system there are ten of our power houses that were originally constructed to supply the mines with electric power.

Nine of our largest canals originally, though expanded, of course, by our industry, were constructed for the mining industry, and ten of our many reservoirs were originally constructed to supply water for mining purposes. And we, on our part, have supplied to the mining industry in California a cheap and efficient power. We have saved, through centralization of operation, the investment of capital in the mining industry. But while we have contributed, in that respect, while we are today supplying the mining industry in California with the aggregate rate of a hundred and ten thousand horsepower, supplying them with ten per cent of our generation, we collect from the mining industry only five per cent of our revenue.

We feel, in the power industry, that the greatest inheritance we received from the mining industry was the pioneer spirit.

In California industry, in the sense of manufacturing, the most reliance today is upon electric power.

This state, from a mining district, developed rapidly into an agricultural country, but it remains, today, a mining state.

We take some pardonable pride, in the power industry, in pointing out some of the accomplishments which have benefited the mining industry and agriculture; some of the advances, some of the world records that have been made in this great state of California for today.

The world records for power development in California today are a direct inheritance from the bold mining engineers who pioneered the mining in-

By WIGGINTON E. CREED†

dustry. We hold the world's record of 220,000-volt transmission, which you will find nowhere else on the face of the globe. The economic significance of that high voltage is that it cuts the cost of



Wigginton E. Creed

transmission in half; that it literally moves the distant power resources of the state to the seaboard and to the valleys where they can be used in development. Not only this, but in point of distribution, the point in which every economic activity is concerned, there is probably no place else in the world where ninety-four percent of the families are supplied with electric power. You would search a long time to find a farm that didn't have electric power service in California. We have, with only three and a half percent of the entire population of the United States, nine percent of the residence customers, ten percent of the commercial customers and ten percent of the industrial customers; in number more industrial customers than there are in the power industry in New York, in Pennsylvania, in Illinois, or in Ohio. The figures of the United States Geological Survey say that last year California generated, from falling water, more kilowatt hours, more electric energy, than was generated in the combined states of Pennsylvania, New York and New Jersey.

The fact is that the power industry has spread over this state, and is not confined merely to the large cities.

Today, all over the country, in the Southeast, in the Southwest, in the Atlantic States, and particularly in the Middle West, there is a determination to create what are called super-power systems or interconnected systems, which permit the building of large plants, because their output can go quickly into a great network of distribution lines. These build up diversity, that is to say, create a load factor which increases the percentage of time your dollars are at work. In California, we have had, for years, an interconnected system. Our own system, for example, is interconnected. Its diversity is the highest anywhere in the United States, and it has this distinction, that nowhere else in the United States will you find, in a single power system, a prune orchard on one end of the line and a gold mine on the other end. And in no other part of the United States will you find a summer peak for agricultural pumping and reclamation, which is balanced by a winter peak in the large cities, thus enabling the dollars invested to carry the summer peak to work again in the winter.

I am particularly interested and glad this great body, this body which represents so much of the future, should have stressed the relation between government and business. The wide discussion of that subject indicates that there is a tendency for something wrong to develop in that relation. We might profitably consider what are the fundamental lessons of human society, and classify the relation of business and government. We will find that in the fertile valley of the Euphrates, under the great kings of Ur, there developed a great economic structure representing great wealth; but those people of antiquity did not know how to develop the right relation between government and business.

All that wealth which was created did not flow to raise the standard of living and created no economic security. The productive capacity ceased, and society could not meet its absolutely necessary desires. And again, at Alexandria, under the Pharos, we find civilization had flowered as great as it ever did. There was tremendous wealth. A social and economic structure which was almost modern in its complexity existed; but again the failure to maintain the right relation (Continued on page 35)

*Delivered to 27th Annual Convention, The American Mining Congress.

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RELATIONS OF THE FEDERAL GOVERNMENT TO MINING*

It Is Well Occasionally To Clarify A Situation By Reviewing The Relationship Existing—In This Article Dr. Bain Outlines What The Bureau Of Mines Can, Will And Does Do For The Mining Industry

By H. FOSTER BAIN†

THE Bureau of Mines is but one of a group of closely related organizations which together form the Department of the Interior. Despite the wide scope of many other departments at Washington, there is none which touches mining and the mineral industries at more points, nor none in which mining men have a more direct interest. Under a wise tradition the Secretary of the Department of the Interior is a western man, and the present Secretary, Dr. Hubert Work, is no exception, he being a citizen of Colorado, a State famous for the many lines of mining activity carried on within its borders.

I am not authorized to speak for the Department in the sense of announcing policies, but on the basis of observation and experience I can tell you what its practice is and what are the underlying principles that have determined that practice. It is also my pleasant privilege to bring to you the personal greetings and good wishes of the Secretary. As a western man, familiar with mining, he knows of the problems you meet in the development and maintenance of your properties, and he sympathizes keenly

with you in the efforts you are making to introduce order and sound common sense into that part of the industrial field you occupy. He has asked me to carry to you his sincere regrets that the pressure of public affairs has prevented his personal attendance at this meeting, and his most sincere good wishes for the success of your sessions. I can assure you that any conclusions you may reach and may voice in your resolutions, will have the most sympathetic and careful consideration of the Secretary of the Interior.

Ours being a Federal Government of delegated powers, it is necessary to find in the Constitution specific authority on which to ground any of its activities. In the case of mines and mining the authority of Congress and the Federal executive rests upon the responsibility which the National government has for care of the public lands and public property of the United States, and upon two general and broad provisions of the Constitution. These are (a) to provide for the common defense; and (b) to promote the general welfare. It is worth noting that in defining each power there has been used an important qualifying

adjective. It is the "common" defense with which the National government is charged, not the responsibility for preserving the local peace. It may be added, this limitation applies in times of strikes as well as when normal conditions of industry obtain. It is only when the common or national defense is jeopardized, or where the State calls on the Nation to back up its own authority, that Federal forces can be employed to quell local disturbances. The police power, and the responsibility that flows from the possession of that power, rests with the States.

So, too, it is the "general" welfare which the National government is charged with keeping and promoting. It was no part of the plan of the makers of the Constitution that the great and growing power of the National government should be used to promote the interests of one section of the country as against another; indeed there are specific prohibitions against any such action. While it is probable that in writing these provisions of the Constitution the thought then ran to differences between States and localities, the fundamental purpose was to avoid discrimination, and any such between classes, professions or in-

*Paper delivered to Twenty-seventh Annual Convention, The American Mining Congress.
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dustries is fully as abhorrent to the Constitution as would be National action to favor one State or one city at the expense of the remainder of the country. We, as mining men, may properly object if at any time the National power is used to the exclusive benefit of any class, be it the farmers, the railroad employes or any other, but we, as mining men, must be equally scrupulous to ask no help or favors from our common government save such as are clearly in the common interest. As mining men, familiar with the mining industry, we may be presumed as a group to be most competent to judge what measures, by promoting health of the industry, will be most beneficial to the common interest; but we will deserve and will win the confidence and the help of our fellow citizens just in proportion as we are careful to ask action only as citizens zealous for the common good, rather than as special interest. For the moment the power of organized minorities and of blocs is in the ascendancy but bloc government is bad government; it is selfish government; it is the government of the hijacker and the hold-up man and such government can not be more than a passing phase of political history in a nation that is to prosper. As mining men who are citizens we have much more to lose than to gain by strengthening the trend toward class rule and, keeping in mind the fact that the people of the country properly look to the American Mining Congress for an informed interpretation of the needs of the mining industry, I trust that this great organization will continue to discuss the matters before it on the broad basis of what is wisest and best for the country as a whole and so will grow further, as it has in the past, in the respect and esteem of the Nation. All too much of our legislation is by the uninformed and there can be no more useful work done by this Congress than to focus public opinion on the real facts as to, and the real needs of, our mineral industries.

The common defense clause of the Constitution has received a broad interpretation, not only in accordance with the general principle that a power delegated to the Federal Government is a complete power and that authority to do anything carries with it authority to take all the steps necessary to accomplish the thing itself, but also because of the wide recognition of the vital character of the common defense to the Nation. It was to assure this that the latter was formed and the Constitution written, and there are substantially no limits to which the Federal Government cannot go if necessary to the common defense. Slavery was abolished and the various Constitutional guarantees have been repeatedly suspended as an incident to the exercise of the war powers of the President or

of the Congress. These suspensions of ordinary law have been sustained by the courts and, provided only that the necessity was clear, by public opinion. As a matter of expediency in normal times of peace, provision for the common defense is made without calling upon the full power of the National Government; but as a measure of how far the latter may go I invite your attention to the fact



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that it may seize private property without compensation. The Constitutional prohibition against such an act runs against the States, not against the Nation. In practice the Federal Government, even in war time, pays for what it takes, the failure to compensate owners for slaves set free being an exception to the general rule. Provided only that it be necessary to the common defense, the Federal Government may take on a wide range of activities as regards mines and minerals. It is difficult in advance to draw a sharp line beyond which action could not extend. It may yet happen that to conserve gas or oil for the needs of the Army and Navy, the power of the Federal Government will be interposed against the reckless waste that still too often obtains. For my own part I do not anticipate such action, all the more since the various states, led by the one in which this Congress is now meeting, are making vigorous use of their police power to curb the selfish minority that has forced on the industry as a whole much bad practice. It is most desirable that the states do whatever needs to be done in this field since their authority is clear, but it is by no means sure that within the broad folds of the Constitution ample authority can not be found for the

Federal Government to act in the common defense if the industry is unable and the States prove unwilling to prevent reckless waste of a vital and irreplaceable resource.

The common welfare clause of the Constitution has so far been construed rather narrowly, a natural consequence of its own great breadth. There is little for which legal justification could not be found if a broad interpretation should obtain. It is uncertain how far the National Government could go relying on it alone, and so far more specific authority has been easily found, as in the interstate commerce clause, for meeting the various responsibilities of the Nation as they have arisen. The general welfare clause can not, however, be disregarded. It was put there for a purpose and it is a real grant of authority from the states to the Federal Government, to act in cases where the general welfare is concerned.

Since the field is one in which differences of opinion easily arise and the subject inevitably falls largely within the shadow zone between state and Federal jurisdiction, a practice has grown up, based in part on division of field and in larger part upon cooperative effort. This is especially characteristic of educational work. Teaching and training teachers have largely been left to the states and the great interest that Americans have always shown in their public schools is in no small degree traceable to the local responsibility for their upkeep and maintenance. The Federal Government does not hesitate to maintain separate schools at its own expense when necessary for its own purposes as, for example, the military and naval training colleges at West Point and Annapolis. It also aids the state schools by grants of lands and money, loan of military instructors, and in many other ways. Finally, it maintains in the Department of the Interior, a Bureau of Education of which the main purpose is the general study of education itself and its methods. Without taking over from the states responsibility for educating the people, the Federal Government in this way powerfully stimulates and assists educational work throughout the country. This system finds its most perfect application in the Agricultural Colleges and Agricultural Experiment Stations maintained jointly by the states and the Nation. Through them not only are our young men and young women trained to carry on the great work of providing the foodstuffs of the Nation in ways better than those followed by their fathers, but constant and vigorous research is maintained to enlarge the body of knowledge necessary to sound and improved agriculture. It is a magnificent work magnificently done, with a closely integrated program from pure teaching conducted by the state,

through joint experimentation and application in which state and Federal forces work together, to pure research aimed at results of general applicability, in which the Federal Government takes the lead and for which it assumes the larger burden of expense. No candid person can become familiar with the facts as to agriculture in the United States through the last quarter of a century without being impressed with the results and without reaching the conviction that the work has paid. It has paid and paid largely in finer livestock, bigger and better crops, in improved fertility of the soil, in greater taxable values, and in human happiness and comfort. What the Federal Government has done for agriculture of itself and in cooperation with the states, alone constitutes an impressive justification for the wisdom of the fathers who wrote the general welfare clause into the Constitution of the United States.

The public lands of the United States had their origin in the Ordinance of 1787 and the cession by Virginia and other states to the general government of the trans-Ohio territories. To these lands others have been added by purchase, by conquest, and by settlement, so that despite more than a century of active effort to dispose of its lands to its citizens, the United States is still one of the great landowners of the world. It has been recognized from the first that this ownership is in the nature of a trusteeship and that the lands are to be administered for the general good. The ideas obtaining as to which methods best assure that result have changed from time to time, but the purpose has been and is the same as when the Northwest Territory was first set off.

The General Land Office was early constituted to administer the public lands and particularly to survey and to sell them. When the Department of the Interior was established as the great Home Office of the American government, care and administration of the public lands and of "the mines of the United States" were transferred to this department. Around this nucleus has been brought together a group of great Bureaus, all related in some way to the public lands. The Geological Survey studies and classifies the lands, the National Park Service cares for the playgrounds of the Nation, the Indian Bureau administers the Indian lands and the affairs of the Indians, the Bureau of Education in addition to its general duties performs a like service for the Nation's wards in Alaska, the Department has built and operates a railroad to give outlet to the lands in Alaska, the Bureau of Reclamation puts water on the thirsty lands of the West and makes homes for the people, and so on through the long list of activities the Department ministers to those concerned

with the public lands and is the executive agent of the Federal Government in its trusteeship for the people generally and for Indian owners.

Among other bureaus in the Department of the Interior is the Bureau of Mines or of "Mining, Metallurgy and Mineral Technology" to quote its full legal title. It is this bureau that you know best, both because it comes in the closest and most intimate contact with your work, and for the further very good reason that it was created at the particular insistence of the very Mining Congress assembled today in annual session. The farseeing pioneers who founded the Congress, including your very able and indefatigable secretary Mr. Callbreath, were thoroughly familiar with what the Federal Government was doing and has done for agriculture. Representing as they did the other great basic industry of the country they insisted that a beginning at least should be made in assisting the miner as well as the farmer. The justice of such a plea, to say nothing of the manifest advantages to the country of stimulating mining and giving the mineral industries the benefit of coordinated research, would seem to have been so obvious that a prompt adoption of the program might have been anticipated. In practice this did not happen. The larger part of the population of this country lives in the eastern states and the people of those states, while dependent on the mines for the bulk of the freight handled by the railroads and for the larger part of the raw materials entering into their manufacture, know little about mining and do not appreciate its importance to the Nation. The people of the Middle States are even less well informed and less concerned. It is only here in the West where the settlement of the country is recent, where the romance of the forty-niner is not forgotten though his primitive methods have long since given way and a great industry has been built on the deposits he pioneered, it is only here that mining is correctly esteemed in its relation to the common defense, the general welfare and sound national economies. If the mining industry is to receive aid and encouragement in keeping with its importance and in ratio with that extended to agriculture, transportation and manufacture, it will be necessary for the people of the West to make their influence felt in the councils of the Nation.

The Mining Congress asked for the establishment of a Department of Mines corresponding to a Department of Agriculture, and after much hard fighting they secured establishment of a Bureau of Mines which was stated at the time in the report of the House Committee, to be but the initial step toward creation of a Department. Since then two other Departments have been founded and

mining still waits an orphan, adopted into a friendly family it is true, but still an orphan with no home or name of its own.

In 1915, after several years further agitation and a careful review of the whole situation by an able committee of Congress, provision was made for a limited number of Mining Experiment Stations, fifteen in all, to occupy in mining a field corresponding to that of the Agricultural Experiment Stations in the companion field. The Director of the various state schools of mines had asked that a mining station as well as an agricultural station be placed in each state; instead less than one station for three states was authorized and money has not even yet been provided for carrying out this limited program. Mineral wealth is much less equally distributed in this country than is agricultural land and there are reasons that may be fairly urged against provision of a Mining Experiment Station in each state, but there is no reason, other than such national poverty as necessitates shortsightedness as against real economy, that may be soundly urged against the support of some such modest number of experiment stations as Congress authorized in 1915.

The function of the experiment station is to perform the tests necessary to solution of the fundamental problems incident to development and utilization of the mineral resources of the district it serves; to collect and disseminate facts helpful to such development; act as a centre for giving out to the industry the results of research accomplished at other stations and central research laboratories; and in general, to promote the sounder and more economical development of the industry in the interest of safety and efficiency. It is not the function of such station to make free assays for prospectors or to take over engineering service work for particular companies or individuals, such as falls within the regular work of consulting engineers and metallurgists. When a general principle is to be learned or applied, when the work involved, in short, the "general welfare" then assays and service may be and are proper; provided always that the results are freely available to the general public.

Thus the great national benefit that would accrue from the finding of a local supply of platinum has, in our judgment, warranted a liberal attitude toward the examination of specimens supposed to contain that metal. There was a further reason here in the fact that relatively few commercial assayers are equipped to give prompt and accurate returns for platinum and certain other rare metals. So, too, the expense of carrying a set of experiments through the semi-commercial stage that lies between the laboratory

development and design and erection of a production unit has seemed to warrant the making of special cooperative agreements with individual companies, where no association was prepared to face the expense. Such contracts provide for bureau supervision of the work, company payment of the expense, and full publication of the results for the benefit of the whole industry. This has been the policy of the bureau from the first, and an honest and determined effort has been made to live up to this policy fully.

The mining experiment stations have already made large returns for the money spent upon them, in contributions to general theory and practice and, incidentally, have been of immediate service to hundreds of companies and individuals in meeting problems of development, treatment and marketing. Contrary to a widely held theory, mining is by no means a matter for large companies. It is the man of small capital who is initiating an enterprise, or who has run into unexpected difficulties in its conduct, who most often comes to the station for help, and there are thousands of such men. The larger companies have their own research staffs and usually prefer to

conduct their own experiments and keep their results to themselves, though not all of them adopt the latter attitude. In the years since its establishment the bureau has at one time or another worked with substantially all the large companies as well as many small ones, and it is but fair to add that the companies have put more money into the joint studies than has the Government. What I would like to emphasize is that the work of the stations, while having the good will and the active support of the large as well as small producers, has inevitably proved of greatest benefit to those who are richer in energy than capital and who without such help would have failed or been long delayed in achieving success. The big rich companies do not need public help and almost without exception give generously of advice and service to smaller producers. This is fine on their part, but there is a public interest in seeing that the latest and best information is available to all.

The work which the Bureau of Mines does and which has to do with the mineral resources of the country is paralleled or preceded by that of the Geological Survey in the study of the occurrence

and distribution of the deposits. These companion bureaus of the Department of the Interior are devoted especially to the securing of the most economical and safest development of the nation's wealth. In this they represent that phase of the activities of the Federal Government that is informational and non-regulative. They are truly service bureaus.

I would not have you conclude, because what has so far been said and much that follows deals only with economy and efficiency in production and use of minerals, that either the Congress which created

necessary to cut down accidents. A series of bad business years results in a higher accident rate such as we are now experiencing, and this is one more reason, and a powerful one, why producing companies as well as individual workers may ask a minimum wage.

There is another field of activity which grows out of the position of trusteeship as to lands occupied by the general government. It has been usual throughout history and around the world to discriminate between the land as a surface upon which men might live and work and mineral wealth beneath that surface. Long after serfs became freemen and tilled their fields by right of ownership rather than by favor, mineral mined from beneath the surface was considered as belonging inherently to the king and only to be worked by favor of concession and on payment of a share into the general treasury. This probably arose from the fact that mineral wealth is most inequally distributed and was originally found only by lucky accident. It was not unnatural that it should be considered that the fortunate discoverer should contribute a share of his findings toward the general expense of the state



U. S. Bureau of Mines Photo

A Mine Rescue Team at a Bureau of Mines Experimental Station

the Bureau of Mines or the men who have formed its staff have been blind to the great humanitarian side of mining that is concerned with the safety of the men. On the contrary, one of the major fields of activity of the bureau has been from the first the investigation of the causes of mine accidents, the study of methods for their prevention, the introduction of these methods into the industry, the teaching of first aid and mine rescue methods throughout the industry, and actual participation in disaster recovery work. We have had and are having entirely too much experience in the latter field. The accidents in American mines are still far too numerous and the number of deaths from disaster far larger than it should be. While you are in Sacramento the men of our Mine Safety Service will give you an opportunity to see something of their organization and work, so I shall not take time here to say more about it. Without going into causes and details I wish merely to remark in passing that we are fully alive to the fact that accident prevention costs money, and while it ends in true economy only an industry that is sound and healthy does, in fact, spend the money

which, in theory at least, protected him in peaceful possession. So "royalties" or kings' parts came into being, and later, when fee simple titles to land became common, the individual land owner, as successor in interest of the king or state, collected royalties from the miner and does today.

This idea of the ownership by the king and state, and up to recently the two were regarded as one, of the mineral wealth beneath the soil was firmly fixed in the laws of England, France and Spain, the three great countries from which the United States derives title. The original charter under which Virginia was settled reserved to the King of England a certain share of the more precious minerals expected to be found, and similar provision was made in various other charters. To this day, if a gold mine were discovered in the State of New York on private land it would none the less belong to the state, and as successor to the kings of England the Empire State would be entitled to collect a royalty.

When the Northwest Territory was created the two minerals of which a shortage was feared and which were re-

garded as essential to the common defense were salt and lead. It seems odd to us, with our larger knowledge of the present day, that scarcity of these particular minerals should have been feared, but in the light of the information then available, and recognizing its limitations, the fear is understandable. At any rate, it was a real fear, and in marking off the lands the surveyors were instructed to set aside the salt and lead lands. These were reserved and were for some years worked on lease from the Federal Government. These constituted the "Mines of the United States" that were specifically placed in charge of the Department of the Interior when the latter was created, though the legislation was general and the principle on which it was based has been consistently followed since.

After a term of years the salt lands were given to the states in which they occurred and the lead mines sold for the benefit of the general treasury. It had become clear that no great or severe shortage either of salt or lead was to be feared, and the department was glad to get rid of the administration of the properties.

When the great gold deposits of California were discovered there was no doubt in the mind of the federal commander in the territory of the right of the Government to the gold, but his force was entirely inadequate to maintain any such right. The miners took things into their own hands, made their own rules and regulations, and had the country developed before the lawmakers at Washington could formulate any law on the subject. In 1866, as you will recall, under the leadership of Senator Stewart, who knew the facts of the case at first hand, the miners' rules and customs were crystallized into law and they, who under any strict interpretation had until then been trespassers on the public domain, became legal owners of their veins. Later the law was revised but, naturally, only in the light of what was known at each time of revision of the occurrence of ores. With increasing needs and increasing knowledge, deposits were developed that did not fit into the simple legal frame formed for gold lodes and placers. The courts made valiant attempts to stretch the law so as to cover the stubborn irregularities of various forms of deposits, but great confusion and uncertainty, vexatious litigation, and much injustice developed. It came to pass that to cover certain classes of deposits a most elastic conscience was needed by the locator, and under such conditions the honest, purposeful citizen is at a disadvantage in competition with the unscrupulous promoter.

About the time these difficulties became especially severe, fear of scarcity of certain of the minerals essential to the

public safety again arose. This time it was the fuels group and the fertilizer group about which anxiety was felt. Coupled with this was a great fear of monopoly that a quarter of a century ago swept over the country and has not yet entirely disappeared. About this time, too, the evils of indeterminate franchises for public utilities came to be generally recognized. It was felt that one generation ought not bind its successors as to the use or control of any opportunity such as created a natural monopoly, or any material essential to the national life and not replaceable. Nearly twenty years of agitation followed, and it was only gradually that conflicting opinions were reconciled. As is nearly always true in such cases, the resulting legislation recorded a compromise, and each of us probably has mental reservations as to the wisdom of one or more of the decisions made, but I think it fair to say that in actual operations the new code of laws has worked better than might have been anticipated.

Under the new system the Federal Government retains ownership of the water power on navigable streams, the national forests, and the coal, oil, gas, phosphate, sodium and potassium lands that then remained in the public domain. The forests are administered by the Forest Service in the Department of Agriculture. The power sites are licensed for a term of years by the Federal Power Commission, a joint board representing the Interior, Agriculture and War departments. The mineral lands are administered by the Interior Department.

Under the terms of the laws the lands are open to lease in blocks and for terms of years, subject to modest royalties. The latter are low and revenue is not the main consideration. Indeed all but 10 percent of the money collected flows back to the states, either directly or through the reclamation works, while all expenses of administration are borne by the public treasury. So far as money return is concerned the non-public land states have virtually no share. While the minimum royalties fixed by the law are low, competition for particular pieces of ground often runs them up materially. Even so, government leases change hands at advanced royalties or for cash bonus, so it is clear that the government royalty does not constitute an economic burden on the industry. The royalty money that would otherwise have gone to a farm owner, a lease speculator, or a promoter, now goes through the Federal Treasury to the school or road fund of the state, or is spent to irrigate arid lands and so create new taxable values; and the amount of money so spent by the mining industry is not larger than it spends when operating on private lands.

In the administration of the leasing

laws the Geological Survey makes the first studies. It classifies the lands, lays out the areas to be leased, makes the first recommendation as to royalties where these are not fixed, and proposes the minimum production requirements. The Land Office handles all matters relating to titles, makes the leases and collects the royalties. The Bureau of Mines concurs in the lease requirements and administers the operations after the lease is given. It measures and certifies the production, giving the Land Office a basis for making collections. In all this work the three bureaus are merely the agents of the land owner, in this case the Federal Government, which in turn is trustee for all the people. The position of the Bureau of Mines is similar to that of a consulting engineering staff employed by a land owner who has leased mineral properties to operating companies. Its engineers must see that the agreements of the lease as regards safety of employees and protection of the property, prevention of waste, and similar matters are carried out, but their presence does not relieve the states of their full responsibility nor do they infringe upon the authority of the states in the exercise of its police authority over mines. In practice the state inspectors and government engineers act in close cooperation, but their function and authority are entirely different and derived from separate sources.

A land owner's interest lies in getting the maximum yield per acre with the minimum risk of damage to the property or delay in operations. Accordingly, the bureau engineers in their contact with lessees have every incentive to assist rather than hamper the operators. They do a large amount of service work and, because of their contact with many operators, become ready media for the transference of knowledge. Repeatedly they have been fortunate enough to be able to make suggestions which, worked out by the operator, have resulted in material reduction in cost or increase of recovery, to the mutual advantage of lessee and lessor. The relations have been almost uniformly cordial, and a spirit of mutual helpfulness is growing up that bids fair to be of great benefit if it shall prove possible to continue to enlist in the service under government restrictions and at government pay of men of the same high character and skill as those so far employed.

It is not easy to administer any business for a government, even one which does not itself involve actual operations. The pay allowed is much less than in private industry, and any manager knows what that means when it comes to competition to get or to hold men. In one section of the Bureau of Mines work, in six months, nine out of sixteen men resigned to accept outside jobs. Com-

parison showed that the Government only allowed us to pay these men 60 percent of what industry was glad to pay. Promotions even within allowable grades of pay are not under control of the one charged with the administration, and it is only rarely that it is possible to recognize promptly efficiency and marked accomplishment. The tendency is more and more to make promotion and pay in the government service a routine matter when seniority of service rates unduly high. Even with the most hearty cooperation of the Civil Service Commission, and an honest bureau head can count on that, a government executive does not have the freedom to hire and fire that is so large a factor in the success of private executives. Estimates must be made nearly 12 months in advance of the beginning of the spending period and two years before its close; but only the most modest leeway for contingencies is allowed, and creating a deficiency is literally a punishable offense. After a bureau chief has prepared his estimates they are pared by the department, the Bureau of the Budget, and two congressional committees, and the simple expedient of our making them large enough to permit such paring is not possible because of the exact knowledge instantly available as to past expenditures. One is not allowed to divulge in advance discussions with the Budget Bureau, nor to protest afterwards, and its decisions are made by men who do not know the field conditions and who necessarily base judgment on the briefest of oral hearings and comparison of tabulations. For one small board to attempt to decide wisely as to items of \$200, and decisions have been made as to that amount, and cover the whole field of government expenditure, is to attempt the impossible. Finally, any expenditure made by any government employe may be disallowed and the expense may fall on him regardless of his understanding of his authority, the actual necessities of the case, or of past practice, by an outside agency from which there is no appeal. The actual decision is made in the main by employes who never leave Washington, know nothing of the circumstances or needs of the work, and know only of pieces of paper that cross their desks.

Please remember some of these things when next you encounter "buck passing" in your relations to Washington. Remember, too, that for nearly a century and a half Congress has been making additional laws to regulate expenditure

and a growing series of departments have been adding supplementary regulations. Recently the Director of the Mint, to pay a 15-cent charge, was required to draw five separate checks, of which the largest called for payment of 4 2/3 cents,



An Experimental Radio Set

and everybody was solemn about it. Remember, too, that if and when a government employe does take responsibility and act for his employer as he would in private work, he is more than likely to be the subject of a congressional investigation and may, if lucky, get off with a statement that while no actual intent to defraud was found there were gross irregularities in accounts. Pondering these facts and conditions, you will, I think, understand why it is that the demand for further incursions into business, demand for nationalization of mines, railways and utilities, comes from those outside the government service or those who, being in it, have the framing of legislation but no responsibility for its enforcement. At best so large an organization as the United States Government will be

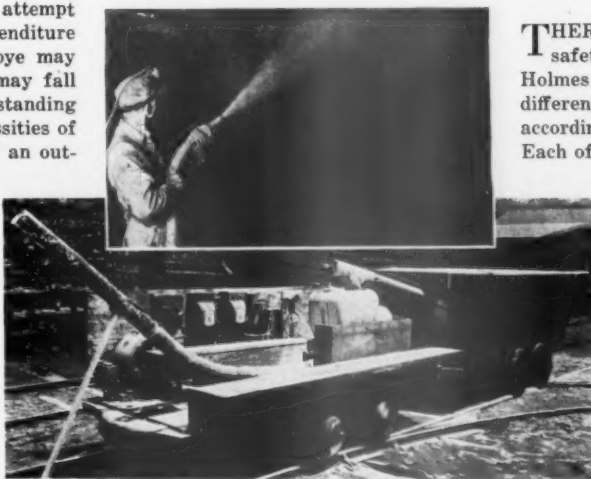
cumbersome and inefficient; at its worst the piling up of restrictions invites incompetency and opens the way to fraud. In an active business these defects would be fatal. As regards mines, I consider it, with some experience both in and out of the government service, out of the question for the government to take over their operation, save locally and under dire emergency, at other than a cost in efficiency that would break even the rich American people. Holding title and leasing properties is as far, in my judgment, as the Government should go, and even that policy can only be made economical and efficient by maintaining and building up the present ideal in which the government representative on the lease is filled with the spirit of service rather than charged with the duties of a policeman.

I would therefore urge that in considering the relations of the Government to industry full consideration be given to the limitations inherent in government organization. Let industry learn to regulate itself, with the state as policeman where one proves necessary. Let the power of the Federal Government be held in reserve for national emergencies and meanwhile acquaint its staff with the real conditions in industry through a close alliance in which the major part of the work falling to the federal employes is research and teaching to find and propagate through the industrial field new and improved methods, a work as worthy as to find and propagate in agricultural fields new and improved varieties of plants.

SAFETY ASSOCIATION GROWS RAPIDLY

THERE are now ninety-four local safety chapters of the Joseph A. Holmes Safety Association located in the different mining districts of the country, according to the Interior Department. Each of these local chapters has a safety

director who has been specially trained in the Bureau of Mines' method of teaching mine rescue and first aid. These safety directors instruct classes of miners, thus supplementing the training work conducted by the Safety Service of the Bureau of Mines. This chapter work has become so important that mine operators, officials of state mining bureaus, and insurance companies are forming safety councils to cooperate with the chapters in putting the work on a broader basis.



U. S. Bureau of Mines Photo
Blower Rock-Dusting Machine, Inland Collieries Co., Indiana, Pa. (Above) Rock Dusting in the Bureau of Mines Experimental Mine at Bruceton, Pa.

MINES BUREAU AND SURVEY MAKE ANNUAL REPORT

Mining Investigations By Bureau Of Mines And Geological Survey Cover Wide Field—Important Developments Result From Work—Year's Activities Revealed In Annual Reports

MINING in all of its ramifications, and the results of discovery of new ore deposits and development of improved processes for recovery of mineral products, are discussed by Director H. Foster Bain, of the Bureau of Mines, and by Director George Otis Smith, of the Geological Survey, in their annual reports submitted to Secretary of Interior Hubert Work.

Mine safety is the keynote in Director Bain's report, who says supreme efforts are being exerted to keep down the toll of mine accidents which persist in spite of continued research and application of safety measures. Investigations are also being had to develop new uses for silver to aid the western mining industry.

Varied investigations on gold, copper, silver, oil shale and other minerals are reviewed by Director Smith.

Accidents in coal mines continue despite results of research which have demonstrated the principal causes and definite means of their minimization, according to Director Bain.

From 1911 to 1923 there were 23,822 deaths in bituminous mines. Coal dust was responsible for the greater part of the fatalities.

Despite good will of miners, operators, state inspectors and manufacturers of explosives and machinery, the tested recommendations of the Bureau have not been adopted in mines as rapidly or as broadly as is necessary if the loss of lives is to be stopped. Although there has been progress, as in decreased loss of life due to accidents from explosives, the death rate from gas and dust explosions is as great as ever. Effective precautionary methods are said to be known and available.

MINE SAFETY

Features of the Bureau's efforts to increase safety in mining have been: development of international cooperation with the Mines Department of Great Britain for research looking to reduction of mine accidents; an intensive campaign for adoption of rock dusting as a preventive of disastrous explosions in bituminous mines; and an extensive study relative to the safe use of electricity in coal mines. Director Bain says that had coal mines employed rock dusting in prior years many large disasters would not have occurred. He urges that rock dusting be adopted as soon as practicable in all bituminous mines in which dust constitutes a hazard.

The use of "permissible" explosives in

coal mines where there is hazard from gas and dust has increased, but replacement of other explosives by "permissibles" has not been as rapid as desired because of the effectiveness and greater security of "permissibles."

The Bureau studied radio as a means of establishing communication between miners trapped underground and rescue parties on the surface which indicate promising results through line radio, which utilizes metal piping, wiring, car tracks, and other permanent metal equipment as voice carriers. A safety campaign in the oil industry has been instituted in cooperation with producing companies. Metal mines are said to have unsatisfactory ventilation, miners working under unhealthful conditions which reduce efficiency. High temperature and humidity deplete the miner's strength and may undermine his health. Workers frequently breathe air containing much fine mineral dust which is injurious. To remedy these conditions the Bureau suggests the use of fans and blowers to insure pure air at working faces and devices and methods to reduce air dustiness, such as wet drills and sprinkling mine workings and muck piles.

It is said that a lignite carbonizer designed by the Bureau will solve the problem of economic utilization of the northwestern lignites which comprise nearly one-third of the solid fuel resources of the United States.

It is said that cooling systems in vapor-tight oil storage tanks will check evaporation losses of gasoline, which amount annually to 3 or 4 percent of stocks accumulated in winter season and valued at millions of dollars. Methods by which gasoline lost in petroleum-refining processes may be recovered by condensation of still vapors are given.

BLAST FURNACE PRACTICE

A process for making sponge iron has been developed in order that sponge iron might be made cheaply for use as a metallurgical reagent, as, for example, for precipitation of copper from its sulphate solutions. Development of a process by which sponge iron may be made cheaply from iron ore and low-grade coal and converted into iron and steel products by melting in the electric furnace would be important to the Pacific coast, as that region is remote from the larger iron and steel making centers but can use cheap electric energy instead of expensive coke.

A new experimental iron blast furnace has been completed at Minneapolis. It is an improvement on former furnaces from a mechanical standpoint. With this furnace it may be possible to conduct experiments and investigations which will give much valuable information regarding fundamental chemical reactions which govern production of pig iron in the blast-furnace. It is proposed to use the furnace in experimental work on production of spiegeliron and ferromanganese from manganiferous iron ores whose smelting has offered difficulties. Since the United States has enormous reserves of these ores the problem of their successful smelting is of great importance to the iron industry.

Important fuel economics in operation of industrial kilns manufacturing brick, tile, and other heavy clay products have been accomplished through studies of burning problems of kilns.

At the request of the Senate Gold and Silver Commission new uses for silver are being investigated in order to increase the demand for silver and aid the western silver mining industry, which has for some years faced unfavorable economic conditions.

POTASH IN TEXAS

Discoveries of commercial deposits of potash in Texas are noted by Director Smith. Many million acres of land were classified as to their mineral or non-mineral character. A large amount of investigation and study was devoted to the mineral resources of the country, and many chemical analyses were made of rocks, minerals and ores.

Surveys of the Colorado Canyon were made preliminary to Federal and State plans for utilization of the natural resources in this region, where 22 possible dam sites were examined. Exploration of the Arctic Coast of Alaska indicated large seepages of oil and geologic conditions favorable to oil accumulation. Since 1898 more than \$2,000,000 has been expended in investigating mineral resources in Alaska, which included visits to hundreds of mining camps.

Work of the Survey during the year included the following:

Examination of mineral resources in 44 states.

Studies in 8 states to determine prospects of obtaining oil or gas.

Laboratory work on sources of petroleum. (Continued on page 14)

A DEPARTMENT OF MINES AND MINING*

There Is Now Before Congress A Bill To Create A Department of Mines. The Passage Of Any Bill Creating A New Department Is A Tedious Process. Senator Shortridge Outlines His Reasons For Asking For A Department Of Mines And The Present Outlook For The Passage Of His Bill

WHEN I speak of mining and think of the establishment of a Department of Mines and Mining, I do not contemplate merely the mining for the precious metals, important and valuable as they are; I contemplate a department which shall comprehend and take care of all the various activities of this great Republic of ours, not only in our continental or immediate United States possessions, but in Alaska, in the Philippines, or wherever American capital and American labor are engaged. Senate Bill 937, creating a Department of Mines, which I introduced, was read twice under our rules, and referred to the Committee on Mines and Mining, and it is there pending for consideration at the coming Second Session of the Sixty-Eighth Congress. I have only time, now, to add that it is my purpose to persuade, convince that committee, if I can, to report that bill favorably, and then to persuade, convince the Senate to pass it in form introduced, or as it may be improved by amendments, and in that respect I wish the Association here to know that I shall more than gladly welcome suggestions in respect to the content or purpose or items—the scope of this particular bill, for, while I devoted much thought to it and had the advantage of very wise advice from the Bureau of Mines and from other gentlemen familiar with this great industry, it is quite possible that this bill, as it is now, may be improved.

No nation can be permanently or safely prosperous when it relies exclusively upon one industry. The security, the prosperity of a nation depends upon a variety of industries whereby the people may be employed. A people to be prosperous must have work and wages, and in order to have work and wages there must be industries. The prosperity of Colorado, for example, flows over into California; the prosperity of New England is reflected in California; and the prosperity of our state similarly flows over and into other states, for we are not forty-eight independent, sovereign nations; we are one great, beneficent Republic, with a hundred-odd millions of people, with one Constitution,

By HON. SAMUEL SHORTRIDGE†

with one destiny, with one labor of patriotism. Therefore, when we build up New England we help California; when we build up the fertile South we help the fertile North.

It was over a hundred years ago that the great son of Virginia, Henry Clay,



Hon. Samuel M. Shortridge

in the Senate in 1810, uttered these words, "The three great subjects that claim the attention of the National Legislature are the interests of agriculture, the interests of commerce, and the interests of manufacture." Manifestly, that was true; manifestly it is true today, but, great and luminous minded Henry Clay might well have added that there was a fourth industry, the interest of which might well claim the attention of the Federal Government, and that interest we are here representing. We are, by virtue of the public lands, the owner of the greatest mineral wealth in the world. I am not talking paternalism, but I say today that this government has wisely given special attention to the great agricultural industry of America, and the most important and valuable department today is the Department of Agriculture, and yet it took years before that department was set up. The Department of Labor is vastly important, and, under the guidance of the present secretary, whose career is a tribute to

America, that department is rendering great and valuable work for the American people. In Washington's day there were only four members of the Cabinet. The number has increased now to ten. No one will question the wisdom of the government in setting up those departments, for it should be remembered that we have a mighty Republic. It isn't as of yesterday, when we were three and a half million only of people; we are now here on the continent over one hundred and seven millions, and we have there, under our guidance, ten millions or more in the Philippines, and yonder in Porto Rico, and Alaska, a vast mineral territory. We have a great nation, wherefor it takes many men and many minds to guide and take care of the interests of this great nation, and the purpose of the bill which I have introduced is, in effect, this:

This proposed measure will, of course, center in the present Bureau of Mines. In other words, the Bureau of Mines is transferred into this department. The preliminary provisions of the bill set up a Department of Mines and Mining, and then I proceed to set out what this department shall consist of. Unless any of you may think that my bill proposes to add to the expenses of the government, I hasten to say that it will be a saving to the government, for its proposes to do away with duplication and concentrate all this work into one department under a given set of officials. It proposes to transfer into this department the Geological Survey, the War Minerals Relief Commission, certain portions of the General Land Office which have to do with facts such as determining the presence or the development of minerals on public and Indian lands; part of the work of the Bureau of Standards, now in the Department of Commerce, is to be transferred; the bill gives the President power to transfer other activities to this department, if in his wisdom it will be desirable. It proposes also that the Federal Power Commission be transferred into this department, and further observe that the interests of agriculture, as well as the question of navigation of our navigable streams are all to be guided by this department, even as they are now supposed to be by the present Commission. It sets up a Bureau of Mineral Industry; it also provides for a department known as the Mines and Explosives Inspection Service, and there is to be a Board of Power Development.

*Address Delivered 27th Annual Convention, The American Mining Congress.

†U. S. Senator from California.

This industry, of course, is older than history. There is no nation on the earth, no civilized, advancing nation, that has mining industry, without a minister or secretary of mines. Are you aware of the fact that the mining industry of this nation sustains, and without it the transportation system of this country would go to wreck and ruin within a twelve-month? The figures upon that subject are startling. The United States is the largest producer of minerals in the world, and one of the few powers which has no Department of Mines; with the largest industry, our government has done relatively the least to help the miner, and has been repeatedly forced, in the face of grave, national emergency, in time of war or domestic strife, to resort to temporary organization, in order to collect and compile necessary facts, to say nothing to determining a policy. Any form of alert, fact finding organization, in intimate touch with all of the branches of the mineral industry is of first importance and will be a great national asset.

As illustrating the size of the mineral industry and its relation to the great problem of national safety:

In 1920 American mining products, raw and manufactured, provided 69 percent of all the tonnage carried in carload lots by Class I railways, producing 69 percent of the revenue freight. They used, however, only 53 percent of all cars actually used in carrying revenue tonnage in carload lots. Raw mining products alone contributed 58.3 percent of all the railroad carload tonnage. It is with these that the proposed department will be concerned. The manufactured mining products were alone greater in tonnage than all other manufactures. It is amazing (and the figures furnished are authoritative), excluding all shipments of bituminous coal, the mining industry still provides, in its raw materials, twice as much tonnage as agriculture, two and one-half times as much as non-mining, miscellaneous commodities, three times as much as forestry, and approximately twelve times as much as animal industry. I hope that those who come from agricultural states will come to see and realize the importance of the mining industry, and that those who are interested in the reduction of transportation rates and freight rates, will come to realize the importance of this industry, for, without it, the rates upon the other commodities would go sky-high. Thus, the development of a mining industry aids all these other basic industries in the immediate matter of freight, and of transportation rates. The importance of the subject is manifest. But it is not an easy matter. It took years to get the Department of Labor established; it took years to set up the Department of Commerce.

BUREAUS MAKE REPORTS

(Continued from page 12)

Field and laboratory work to determine the mode of formation of oil shale.

Examined coal fields in 6 states. Field studies of ore deposits, and coal beds in 12 states.

Studies of metalliferous deposits in Michigan and California.

Found deposits of potash in Southwestern Texas which promise to be of commercial value.

Field investigations in Western states to determine arsenic resources. Identified 2,698 mineral specimens.

Laboratory studies to determine mode of formation of metallic copper in ore deposits.

Studied chemical nature of organic matter in oil shale to discover formation of petroleum.

Studied copper deposits of Prince William Sound and mineral resources of southeastern Alaska, and nickel deposits in the Sitka district.

Examined ore deposits and mineral resources along Alaska Road.

Classified 1,812,685 acres of public land as coal land and 4,105 acres as oil land.

Coal land withdrawals were reduced by 2,998,210 acres and oil land withdrawals by 421,723.

COAL RESEARCH

Director Smith says there is a pressing demand for research concerning coal, its nature, composition, origin and special fitness for use in particular industries. "The increasing demand for power implies the necessity for more intelligent and economical use of heat units in coal which are not wasted," he says.

The nature and origin of oil shale is also being studied to reach a clearer understanding of conditions under which oil shales were laid down; and to determine its constitution with reference to its commercial use.

Director Smith says the Survey is making a study of metalliferous deposits to shed light on the occurrence of gold and copper. Study is being made of quartz veins of the Mother Lode, Calif., and surface and underground conditions in the Michigan copper region.

Bauxite deposits in northwestern Alabama were examined. Study was made of formations that may carry oil.

Investigation was made as to the best method of mining coal in coal mines at Kearns Canyon Agency, Arizona.

Work was conducted on valuation of mines and prospects adjoining the Boulder and Black Canyon dam sites. Asbestos deposits near Globe were studied.

Manganese deposits of the Batesville, Ark., district were examined.

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NATIONAL PARK IN SOUTH

THE Blue Ridge Mountains of Virginia have been chosen as the site for the first national park in the eastern part of the United States, according to a recent announcement by Secretary of the Interior Work. It is proposed that this park shall be called Shenandoah National Park. The proposed park will embrace approximately 700 square miles in eight counties between Front Royal and Waynesboro, Va. This area is full of historic interest, the mountains overlooking the valleys where many of the battles of the Revolutionary and Civil wars were fought and where a number of Presidents of the United States were born.

DECENTRALIZATION PLAN INAUGURATED BY INTERNAL REVENUE BUREAU

Internal Revenue Commissioner Promulgates Order Which Places Primary Responsibility For Determination Of Tax Liability Upon Field Officers—Board Of Tax Appeals Sustains Mine Operators On Question Of Deductibility Of Expenditures Incurred To Maintain Mine Output

THE procedure of the Bureau of Internal Revenue in office audits and field investigations has been completely revised in an order promulgated by Commissioner David H. Blair under date of November 28, 1924. The new procedure was made effective in all office and field divisions and independent sections of the Income Tax Unit from and after December 1.

The new procedure is practically the final step in the Commission's efforts to decentralize the work of the Unit so that the taxpayer might have ample opportunity to present his case to the local agent in charge instead of being compelled to appeal to the department at Washington in every instance.

The Commissioner's order provides that all cases shall be referred for field audit except those which can be closed on the basis of the information at hand without additional correspondence with the taxpayer. And in order that there may not be a duplication of effort in the audit of the case, it is provided that if any items considered in the preliminary examination of a return are doubtful, the case will be sent to the field, and attention directed to the points which it is desired shall be covered in the examination.

FIELD CONFERENCES AUTHORIZED

In all cases that are sent to the field, the agent in charge of the field division is authorized to make such examination as is necessary to secure all available facts pertinent to the points at issue, arrange a conference with the taxpayer or his duly authorized representative for the purpose of reaching an agreement, and then to forward all these data to the office in Washington together with his recommendations for review.

If a substantial revision of the officer's report is considered necessary, the taxpayer will not be notified of the proposed action of the Bureau until the field has submitted comment with respect to the proposed change. All cases investigated in the field divisions will be reviewed in the appropriate office divisions in Washington.

In order to secure maximum efficiency in the working of the new plan, and to bring the field force into closer relation with the office organization of the Income Tax Unit, the field division has been abolished as such and all field divisions

By MCKINLEY W. KRIEGH

are placed in the same relative position in their relation to the office of the deputy commissioner as the office divisions. An assistant deputy commissioner has been appointed to administer and coordinate the work of the field divisions.

If protests, briefs, or statements of



Thomas T. Brewster

additional facts not first submitted in the field, are filed by the taxpayer in Washington, and which may result in other than minor changes, these must be sent to the field for examination and recommendation before action is taken thereon by the office divisions in Washington.

AGREEMENTS IN THE FIELD

The order provides that in cases in which an agreement has been reached between the agent in charge and the taxpayer, evidenced by a written agreement signed by the taxpayer waiving notice and assenting to the assessment of the deficiency in tax or other proposed adjustment of the return, and in which the tax liability upon review is found to have been correctly determined, an appropriate closing letter will be mailed to the taxpayer at once and the case closed upon the agreed basis.

But, it is further provided, that no agreements, based upon the waiver of any right of the government, can be entered into by an officer or employee of the Unit, and taxpayers, therefore, should exercise great caution in signing an agreement whereby some right of theirs might be waived or signed away. The examining officer, in all cases, must present not alone his findings but also the views of the taxpayer with respect to items in dispute; and where the facts or the points of law cannot be agreed upon, the taxpayer should avail himself of full opportunity to appeal to the department at Washington by declining to sign any agreement whatever.

NATURAL RESOURCES EXCEPTED

In all examinations involving valuation and depletion of natural resources, and other questions relative to engineering problems, the examining officer is required to show in his report the taxpayer's claim as reflected by the books, and no changes are to be made by him. He is required, however, to incorporate in his report all available pertinent data which may be of assistance in the determination of the questions involved. And he is required also to notify the taxpayer that these questions are subject to adjustment in Washington.

Consolidated cases also are excepted from the order, where the records necessary to be examined are scattered over two or more divisions and cannot be readily handled from contiguous field divisions. In cases of special assessment, the determination of net income (and invested capital in so far as possible) will be handled in the field; but the amount of tax due under applications for special assessment will be determined by the Washington office.

EFFECT OF DECENTRALIZATION

Whether or not the inauguration of this plan will result in an improvement in the income tax administration by securing prompt adjustment of tax liability and by reducing the expense and inconvenience to which taxpayers in the past have been subjected by reason of repeated examinations, readjusts, and expensive trips to Washington, will depend largely upon the business capacity and good faith of the agents in charge in the field.

Of course, if the taxpayer is unable to

secure a just settlement of his case in the field, he will not be denied recourse to the same procedure heretofore followed in protesting and appealing his case, first, to the Commissioner, and, second, to the Board of Tax Appeals. The change in the Unit's methods should result in the settlement of all minor issues, at least, in the field, without an appeal to Washington. And, to this extent, the change doubtless will prove a welcome one to small taxpayers who have been unable to bear the expense of trips to Washington that heretofore have been necessary in order to secure a proper hearing of an appeal.

ALLOWABLE CAPITAL ADDITIONS

The decision of Solicitor of Internal Revenue Nelson T. Hartson, under date of September 15, 1924, that "car wheels, light rails, copper cable, horses, harness, and chain-haul replacements purchased and used by a coal company in its business should be capitalized and not treated as minor items of current expenses," brought forth a storm of protest from the mining industry.

The ruling was made under Article 222, Regulations 45 and 62. It held that these items "were of such a nature as to have a useful life extending over a period of more than one year," and, therefore, should be classified as major items under the regulation. Prompt action was taken to prevent the application of the ruling to other pending and closed cases.

TAX DIVISION PROTESTS

The 27th Annual Convention of the American Mining Congress on October 4 passed a resolution authorizing the creation of a sub-committee of its General Tax Committee to deal with this and other questions. On October 7, the Tax Division of the A. M. C. urged the Commissioner to request reconsideration of the ruling, since, if used as a precedent, it would have caused "closed cases to be reopened and unanticipated additional tax liability to be assessed for which the mining companies have made no provision."

Also on October 7, Thos. T. Brewster, of St. Louis, now chairman of the A. M. C. sub-committee, notified prominent coal operators of the seriousness of the matter, and interest was aroused to such an extent that the National Coal Association appointed a special tax committee to deal with the matter.

On November 5, officials of the Income Tax Unit informed Mr. Brewster that the ruling was being reconsidered, and on November 12, the then acting Solicitor, Mr. Rogers, informed the N. C. A. committee that the ruling would not be and was not intended to be used as a precedent.

At these informal conferences, it was

urged by the representatives of the industry that, instead of using the one-year-useful-life principle, the department should determine whether expenditures were made merely to maintain normal output or to increase output capacity.

ACCOUNTING TESTS ADVOCATED

Mr. Brewster contended that the following tests should be applied before it is determined that items should be capitalized: "1. Did the expense increase the output capacity? 2. Did it increase the value of the mine from the standpoint of the purchaser? 3. Did it materially reduce the cost of production?"

On November 21, the Board of Tax Appeals ruled in the case of the Bruin Coal Company, Pittsburgh, that "rails, pipe, and pumps purchased in 1918 and a hoist purchased in 1920 were merely for the purpose of maintaining the output of the mine and that they constitute expenses of operation rather than capital outlay," but that the purchase and installation of empty car equipment, "for the purpose of reducing overhead, and for the purpose of doing away with the services of a number of men * * * was capital outlay and as such was not deductible from gross income" as expense.

REVISED REGULATION RECOMMENDED

In order that the favorable results thus far accomplished may be crystallized into a definite regulation, the A. M. C. tax sub-committee will recommend the revision of Article 224, Regulations 65, to embody therein the tests which apparently were recognized by the Board of Tax Appeals in the Bruin case. These tests apparently have met with the general approval of coal operators, and it is believed that they will be approved by the metal operators. It is generally conceded that the existing regulation is vague and uncertain and has been the cause of much controversy in the adjustment of the tax liability of many mining companies.

R. V. Norris, of Wilkesbarre, a member of the A. M. C. General Tax Committee, in a memorandum to the Tax Division, is of the opinion that "improvements put in to increase the productive capacity or to decrease cost of operation should generally be capitalized; but cost to maintain production and costs to maintain plant in a condition to meet competition, i. e., cost necessary to keep the plant up to date, so that it may be possible to compete on equal terms with other producers, should be charged to operating expense. Such maintenance, including adoption of modern methods

as they develop, is necessary to maintain competitive production, and does not add to the value of the plant as a whole, although the failure to maintain such conditions might readily destroy the value of the plant.

"In general any work, however extensive, which does not add to the value of the property should be considered an operating expense and should under no circumstances be capitalized."

ARIZONA CHAPTER ANNUAL MEETING

AT the annual meeting of the Arizona Chapter, The American Mining Congress, the following officers and directors were elected for 1925:

Officers.—G. M. Colvocoresses, Governor; W. S. Boyd, 1st Vice-Governor; John C. Greenway, 2nd Vice-Governor; F. W. MacLennan, 3rd Vice-Governor.

Directors.—Robert E. Tally, General Manager, United Verde Copper Co., Jerome; F. A. Woodward, General Manager, Iron Cap Copper Co., Copper Hill; G. M. Colvocoresses, General Manager, Southwest Metals Co., Humboldt; W. G. McBride, General Manager, Old Dominion Co., Globe; J. Kruttschnitt, Jr., Manager, American Smelting and Refining Co., Tucson; P. G. Beckett, Vice-President and General Manager, Phelps Dodge Corporation, Douglas; F. W. MacLennan, General Manager, Miami Copper Co., Miami; T. H. O'Brien, General Manager, Inspiration Consolidated Copper Co., Inspiration; Wm. Koerner, Magma Copper Co., Superior; T. O. McGrath, General Manager, Shattuck Arizona Copper Co., Bisbee; Jas. S. Douglas, President, United Verde Extension Mining Co., Jerome; J. P. Hodgson, General Manager, Phelps Dodge Corporation, Morenci; W. S. Boyd, General Manager, Ray Consolidated Copper Co., Ray; John C. Greenway, General Manager, Calumet & Arizona Mining Co., Warren.

When precious metals were first used for mediums of exchange, they were simply weighed. The next step was to issue pieces of gold and silver properly weighed and then to mark the exact weight and value on each piece. This was done in Assyria and Babylonia. The Greeks of Phocaea in Ionia, in the seventh century B. C., first conceived the idea of coining money and stamping on each piece their city arms. This method of coinage rapidly spread through Greek towns of Asia Minor and was thence transplanted to Ægina, the Peloponessus, Athens and the Greek colonies in Africa and Italy.

HUMAN RELATIONS IN INDUSTRY*

According To The Ideas Presented In This Article, The Major Problem Of Industrial Cooperation Is To Secure Complete Harmony Between The Four Factors Of Industry—Capital, Management, Labor And The Public

TO say industrial relations is merely another way of saying human relations. There can be human relations which are not industrial, but all industrial relations are human relations. Human relations if they are truly such are cooperative in character. To cooperate means to work together.



E. J. Henning

The word comes from two Latin words: "co," meaning together, and "opus," meaning to work; hence, work together. The nub of the proposition or problem, therefore, is how to bring about a situation that will secure the working together of the factors of industry.

The problem of industrial relations in the United States is wholly different from the same problem in the countries of the old world. It is much more difficult here than there. In the old countries certain rules have been established which bring about certain results. In America industry has grown and expanded and developed so rapidly that it is a constantly changing problem, and a rule established today is obsolete tomorrow.

To assist in properly adjusting and readjusting the factors of industry so as to bring about the proper spirit of cooperation between them is one of the duties and responsibilities of the United States Department of Labor.

The creation of the Department of Labor was the culmination of a fight of more than fifty years on the part of American labor in an effort to have a direct representative of labor present in the deliberations of the heads of the government.

The department was created less than twelve years ago. The signing of the bill creating the department was the last official act of William Howard Taft as President of the United States on March 4, 1913.

The act creating the department briefly declares its purpose to be to fos-

By HON. E. J. HENNING†

ter, promote and develop the interests of the wage-earners of the United States, to improve their working conditions, and to increase their opportunities for profitable employment. This is a broad commission. In its broadest sense its ramifications run through the whole industrial life of the nation.

The principal bureaus and divisions of the Department of Labor are: Immigration, naturalization, labor statistics, women in industry, children in industry, industrial housing, employment and conciliation. These various bureaus and divisions perform the functions indicated in a general way by their names. I am often asked why the Bureau of Immigration should be in the Department of Labor. I do not know except it is on the theory that the average immigrant will be classified as a laborer while here. There probably are other reasons. In the Bureau of Naturalization we perform the strange alchemy which converts an alien into a citizen. In the Women's Bureau and Children's Bureau we deal with those classes of our people who become factors in industry. The Bureau of Labor Statistics is the great fact-finding arm and renders a wonderful service to all factors of industry and to all our people. The Bureau of Industrial Housing is a left-over war baby and is to be wound up as soon as practicable. In the Employment Service we aim to bring the jobless man and the manless job together.

The division of the Department of Labor dealing most directly and intimately with the question I am to discuss is that of conciliation. That division concerns itself wholly with the problem of industrial relations. Through that agency we seek to avoid controversies in industry and we assist in adjusting them when they reach the strike stage. Hundreds upon hundreds of threatened disturbances come to the Department of Labor, and through the experts in the Division of Conciliation we adjust about 90 percent of them without letting them reach the breaking point. The personnel in that division consists of men and women who are trained craftsmen in the various occupations, and they make it their duty to keep an eye on the particular industry in which they are expert and to observe the danger signals and to apply the remedy wherever possible.

Industrial America is such a tremen-

dous thing! The American people are so unusual. We produce much more than any other people of the world, and we consume so much more. We constitute about 6 percent of all the people of the world. There are about one billion eight hundred million people in the world. One in approximately sixteen lives in America. I took down a brief statement of what we, for example, produce and consume; just a few of the principal items. You will find it very interesting. For example, we in the United States own 40 percent of all the water power that is installed in the world. We operate 35 percent of all railroad mileage in the world. We operate 57 percent of all telegraph service in the world. We produce about 41 percent of the world's cereals, and 71 percent of the world's cotton—think of it—71 percent of the world's cotton produced by 6 percent of the people. Fifty percent of the world's supply of coal is produced by 6 percent of the people. We furnish 64 percent of the petroleum, 52 percent of the timber of the world, and then in the world's output the United States contributes 68 percent of the zinc, 48 percent of the lead, 59 percent of the copper, 52 percent of the pigiron. We produce a proportionate percentage of all the things of modern industry.

Between 1850—which is a little before the beginning of our real industrial era—between 1850 and 1920, the population of the United States increased approximately 360 percent. In that same period of time the production of the agricultural crops rose 520 percent. The manufactures increased 2,800 percent—note that while the population increased 360 percent manufacturing increased 2,800 percent. The mining industry of the country increased 7,700 percent. In the same period of time that the mining industry increased 7,700 percent we increased the population 360 percent.

We are also the world's greatest consumers per capita. We in the United States, we the 6 percent—use 90 percent of the plumbing supplies of the world. You must travel in Europe, Asia and Africa in order to appreciate that. We consume actually 25 percent of all the world's cotton. We consume 60 percent of the world's coal. We use 67 percent of all the steel made in the world. We consume 50 percent of all the coffee of the world, and we don't produce any of it. We also consume 25 percent of the world's supply of sugar. About 40 million of our people are em-

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*Address Delivered to the 27th Annual Convention, The American Mining Congress.

ployed in gainful employment. Twenty-five and a half million, approximately, are wage-earners.

The foregoing presents a brief picture of industrial America. It stands unparalleled in the industrial history of the world. With dizzy speed during a period of sixty years we have grown from an agricultural colony into one of the world's most marvelous industrial nations. In that period we have become not only the world's greatest producers per capita but also the greatest per capita consumers. We have more industrial wage-earners in America than has any other country. We have a larger number of great corporate enterprises than any other nation in the world.

Ordinarily the factors of industry are spoken of as capital and labor. That was true sixty or seventy years ago, but it is not true today. I classify the factors of industry as four, namely, capital, management, labor, the public. Our problem is to so adjust things that each of these factors occupies its proper place and receives its proper share from the common results. When we have so adjusted these factors in any given industry that each gets its right proportion of what comes from the industry and what is necessary to produce the result, then we will have perfect cooperation and industrial peace.

The factor of management is almost wholly American. The brains which manage the gigantic industries of America are in the heads of men who own but a very small part of the capital of the industry. This new factor is one of the difficult factors in the equation. The public has its rights and expresses some of them in legislation sporadically. When this factor is accentuated it creates great disturbances.

The shops and factories and industries employing 500 men or more constitute but 1 percent of the total number of plants and industries. However, this 1 percent of plants employs 50 percent of all the wage-earners of the nation. That means that many of these plants employ many times 500 men, and such a situation creates its own problem. United States steel employs more than a quarter of a million of men. It has more than 120,000 stockholders. Sixty thousand of its stockholders are employees.

The problems of industrial relations increase with the size of plants and industry. Each has its own problem. Some of our outstanding industries in size have worked out very effective plans of cooperation.

In the final analysis a successful plan must embrace the idea and the principle of cooperation, of copartnership, of sharing the results of special effort. Unless the man of capital, the man of manage-

ment, and the man who toils can evolve a plan which gives them a common basis, it will be difficult to maintain peace in that industry.

I have been deeply impressed by the story of John D. Rockefeller, Jr., and of how he brought peace out of war in a gigantic industry in Colorado owned by himself and his father. There had been bloodshed and hatred and destruction for some time. Since the plan of the younger Rockefeller was put in operation there has been peace. Rockefeller's basic idea was the personal relation between the factors in that particular industry. His idea seems to be based upon the conception of the brotherhood of man, of the sympathetic dealing between the boss and the workmen. He himself visited a large percent of the employes in their various places of toil, in their homes, in their churches, in their schools, in their places of recreation. He met personally the families in their homes, discussed with the wife her problems and with the husband his. He encouraged them to pour out their hearts to him, their hopes, their fears, their aspirations. He responded wonderfully and achieved wonderful success. Cooperation there was more or less in the matter of the social relations, but it also involved the financial.

On the whole, industry in America was never so peaceful as it is today. Never have the prospects of permanent peace been better in America. In spite of the hatreds and difficulties created by some of the most far-reaching strikes of years gone by the future is bright in industrial America.

More and more all the four factors of American industry realize that we are all in this thing we call America together. The wage-earner, the manager, the stockholder, the public each sees more clearly from day to day. Each seems to understand that neither one of the factors of industry can suffer without all feeling some of the pangs, that neither one can prosper without all sharing to some degree in their prosperity.

METAL MINING INCREASES

THE metal-mining industry of the United States employed 123,279 men in 1923, representing an increase of 17 percent over the number employed in 1922, according to statistics compiled by the Bureau of Mines. The volume of work performed was equivalent to 36,559,805 men-shifts of labor, or 25 percent more than in the preceding year. The death rate from accidents at the mines was lower than has ever before been recorded, but the nonfatal injury rate continued to rise. The fatality rate was 3.01 per thousand men employed, calculated on a standard of 300 work days per man per year; the injury rate was 275 per thousand men. Prior to 1923

the lowest fatality rate was 3.09 for the year 1921; the highest was 4.45 for 1911. The actual number of men killed by accidents in 1923 was 367; the number injured was 33,563, each injury incapacitating the employee for one day or more.

The reduction in the fatality rate for 1923 is credited to iron mines and to the gold-and-silver group of mines, as there was a slight increase in the fatality rates for mines producing copper, lead, and zinc, and non-metallic minerals.

The volume of work done, as indicated by the aggregate number of man-shifts of labor performed by all employes, indicated increased activity in all of the major branches of mining. The increase, as compared with 1922, was 37 percent at copper mines, 35 percent at iron mines, 11 percent at gold and silver mines, 19 percent at lead and zinc mines in the Mississippi Valley States, and 12 percent at mines producing non-metallic minerals.

Not only did the industry as a whole enjoy greater activity than in the preceding year, but the average number of work days per man was 297 in 1923, as compared with 276 days in 1922. This increase likewise was shown for all branches of mining.

Of the 33,930 accidents covered by the Bureau of Mines' reports, 367 caused the death of the injured man, 20 resulted in permanent total disability, 414 caused permanent partial disability, 8,531 caused temporary disability lasting more than 14 days, and 24,598 caused temporary disability not exceeding 14 days but lasting longer than the remainder of the day of accident.

The main causes of fatal accidents underground were falls of rock from roof or side, haulage, explosives, and falling down chutes, winzes, raises, or stopes. Of the non-fatal accidents the principal causes were falls of rock from roof or side, handling and loading ore at the face, haulage, timber, or hand tools, and drilling.

In open-pit operations the main causes of fatal accidents were haulage, explosives, and falls of rock, while the non-fatal injuries were caused mainly by haulage, falls of rock, hand tools, falls of persons, and steam shovels.

The House Immigration Committee has approved a project for summoning a conference of all the countries of the western hemisphere to meet in the United States to bring about a uniform immigration policy.

President Coolidge may shortly be called upon to summon the conference. Return of Secretary of Labor Davis from South America, where he has been sounding out sentiment toward such a meeting, is awaited before giving the movement definite form.

THE ROBERT C. GEMMELL MEMORIAL CLUBHOUSE

*Splendid Tribute Is Paid To Former General Manager By Utah Copper Company
In Erection Of Beautiful Clubhouse At Bingham*

By GAIL MARTIN *

FROM time immemorial, men of character have striven to leave a worthy heritage to the world at their passing. Those who have not been able to bequeath some mental or spiritual heritage to humanity have perpetuated their names by building splendid temples and mausoleums so that mankind might ever be thankful that out of the flux of life had arisen a personality so powerful, so munificent and so sublime.

But as man has advanced and times have changed, the manner of keeping alive one's memory has altered somewhat. Libraries, schools, scientific centers are endowed. Benefactions are of a less self-aggrandizing and more useful character.

Decidedly of the latter type is the Robert C. Gemmell Memorial Clubhouse constructed and dedicated recently by the Utah Copper Company at Bingham, Utah, in memory of former General Manager Robert C. Gemmell. The unities of beauty, utility and comfort are combined to a remarkable degree. It stands as a monument to a man who made a success of his profession, yet made no small contributions to civic and commercial progress; an employer of hundreds of men who never forgot his obligation to humanity. It represents a splendid sentiment, a characteristic which distinguished Robert C. Gemmell—genuine love for humanity.

There is not a little romance centered in this beautiful building which in luxury of appointments and furnishings equals any of the best and most modern metropolitan clubs. It stands as a symbol of the achievements of Robert C. Gemmell who started out with the Utah Copper Company as superintendent of mines and mills in 1906, when the Bingham project was a highly speculative, much derided and a roseately visionary enterprise. It commemorates the accomplishments of both the man and the corporation, which during the sixteen years of his service

became the greatest copper producing company in the world with a dividend record of \$120,000,000 and a future that ensures a production many times that of the first sixteen years of its history.

The clubhouse, built in the heart of Bingham near the company's offices, is of Spanish Mission type, unostentatious but dignified and artistic in appearance. Work of erection was carried on under the engineering department of the Utah Copper Company. Fred Hale, Salt Lake architect, designed the building. The brick walls, piers and arches, finished in a gray tinted stucco, are capped with pebble-faced concrete and heavy sheet copper. Broad granite steps with copper-bronze ornamental hand rails lead up

rooms, showerbaths, and bowling alleys. A large veranda on the east side affords space for rest and refreshments when dancing parties are in progress.

The club lounge room, forty-five by fifty feet, with its artistic lights and hangings, luxurious furnishings as well as its general plan, is a joy to the eye. Every accessory for pleasure and comfort apparently has been provided, including billiards, pool, card, mah jongg tables, easy chairs and a booth for dispensing soft drinks and cigars. A veranda, thirty-six by eleven feet, screened in the summer and glassed in the winter, flanks the lounge room.

In one corner is a roomy nook, with an inviting stone fireplace, lamp, tables and roomy upholstered settees. A completely equipped kitchen with a large electric range, sinks, and cupboards, adjoins a rear corner of the lounge room.

For the person who prefers the quiet joys of life, reading, meditation, and study, a library and writing room 20 by 37 feet has been provided on the second floor. A

fireplace, built-in bookcases, solid walnut tables and writing desks, oak benches, and a domed niche in which has been placed a copper bronze bust of Mr. Gemmell, endow this room with an irresistible atmosphere of repose and beauty.

The Gemmell bust, by C. E. Dallin, Utah sculptor, was donated by Mrs. Belle Anderson Gemmell. The remainder of

the second story is occupied by ladies apartments, entirely segregated, a hall alcove, and the caretaker's room.

An interesting feature in the design of this building is the extensive and varied use of copper and its alloys, a course prompted not only on account of the sentiment involved but for beauty, durability, and avoidance of repairs. Showers, faucets, traps, and the entire piping in the building are standard brass. Roof coverings, cornice, gable ornaments, gutters are of pure copper secured with copper nails. All employees are eligible for membership.

under an archway to the tiled landing at the main entrance to the building.

To the right of the entrance hall is the gymnasium or amusement hall, forty-eight by seventy-nine feet, the walls of which are lined with gray pressed brick. The floor is hard, polished maple, ideal for dancing. A balcony six feet in width extends entirely around the room enlarged at the west end by an oracle bay window to afford ample space for an orchestra. A lofty ceiling, pierced with skylights, affords proper light for basketball and other games.

Below, in the basement, are locker



* Mining Editor, The Salt Lake Tribune.

THE COLORADO INDUSTRIAL LAW*

When Colorado Came To The Conclusion That It Is The Public That Suffers Most Because Of The Disagreements Of Employer And Employes, It Created An "Industrial Commission" Whose Functions Are Outlined In This Article

By WILLIAM I. REILLY†

THE people of Colorado, as well as of the whole nation, were horrified in 1914 when the lives of women and innocent children were snuffed out, the victims of an industrial conflict. Even if they were not intentionally killed, this relieves but little the horror of the situation.

There have been four or five industrial wars within the confines of Colorado during its comparatively short industrial history, resulting in much bitterness of feeling, destruction of property and loss of life, bringing to our citizens a realization of the fact that the underlying causes of industrial strife run deep into the foundations of our civilization itself.

The public has learned that it is the real party in interest in all disputes between employer and employe—that it suffers all the hardships and pays all the bills.

Colorado realized that it had failed to provide any effective legislation that would tend to prevent such seemingly unnecessary and horrible conflicts. When the legislature convened in 1915 there was a determined effort on the part of the public to supply an authorized agent to definitely represent the public's interest in industrial disputes—an agency that would use its good offices in attempting to prevent the recurrence of another horrible industrial struggle such as had just ended. The result was the passage of the Industrial Relations Act of Colorado. I will not attempt to give you the full details of this act, nor all of the powers conferred by it upon the Industrial Commission, but will mention only those sections that relate particularly to strikes and lockouts.

The Colorado law created a commission, composed of three members, known as the Industrial Commission of Colorado. The law gives the commission jurisdiction over every dispute between employer and employe regarding wages, hours or working conditions, prohibits a lockout by the employer or a strike by the employe pending an investigation of such dispute by the Industrial Commission, and requires either party desiring a change in working conditions to give to the other and to the Industrial Commission 30 days' prior notice of its demands. The commission's award is not binding upon either party unless both parties, prior to the rendition of the award, agree to be bound thereby.

One section of the act provides that a mandatory writ shall be issued, upon the application of the commission, by any district court of any county in which the place of employment, or part thereof, is situated, ordering either or both parties to the dispute to continue the conditions in statu quo until the entry of the award by the commission.

The general terms of the act give the commission full power to subpoena witnesses, to require the productions of books and papers by either party, and to hold hearings, either by the commission or by a board appointed by the commission.

The scope of the act covers the general relationship between employers and employes and specifically directs the commission to do all in its power to promote the voluntary arbitration, mediation and conciliation of disputes between employer and employe, to avoid strikes, lockouts, boycotts, blacklists, discriminations and legal proceedings in matters of employment.

The law does not take into consideration the question as to whether the employes affected are union or nonunion—the commission has recognized the officers of the union as representatives of the union employes, the representatives of the employes organized under any system or plan, and also the representatives of nonunion and unorganized employes.

The primary object of the law is conciliation. No question arises prior to a strike that is not capable of some just and equitable solution. After a strike has occurred, many entangling complications arise and a settlement becomes more difficult each day.

In many of the controversies handled by the commission there is a contract between the employer and his employes, or between the employer and a union, fixing the wages, hours and conditions of employment, and which contract terminates at a definite time. Frequently the contract termination date arrives before an agreement is reached, and the disposition of one side or the other is to make the changes demanded. The parties are unable to make some definite arrangement pending further negotiations. Trouble starts. Under the Colorado law all previous conditions automatically continue pending action of the commission. This prevents the injection of new

and irrelative difficulties before the complete analysis of the real problems involved.

At the inception of a difficulty the commission uses every effort to inform itself of all the questions involved and attempts to obtain conferences between the employer and employes, with a view to a settlement by mutual agreement. If such efforts fail, the controversy is set for hearing, in which at least two, and in the great majority of the cases all three, members of the commission participate. There are no formalities at these hearings; in fact, it is seldom that the commission proceeds twice in the same manner. Each controversy, because of the questions involved or the personality of the contestants, requires a change in tactics. In the great majority of cases the employers and employes appear in person, without attorneys, and present their facts.

During a hearing the commission often gets a suggestion for a line on a settlement from the statements of parties or the testimony of witnesses, a recess is taken, and the commission requests the parties to confer along the suggested lines, and through such efforts an agreement is reached voluntarily by the parties.

In the hearings the commission is exceedingly liberal in the latitude given witnesses. In fact, it often seems that it is a safety valve to one to officially unburden himself of the tremendous weight of some insignificant chip he had been carrying on his shoulders. One of the effects of a hearing is that personal grievances or grudges that have arisen during the employment, that seem to the particular personality of the individual so large as to be unsurmountable, dwindle into insignificance when he tries to impress the magnitude of them upon a disinterested conciliator. Often employers and employes become disgusted with some positions they have taken when scrapping among themselves and, out of shame, drop their grudges; as a reaction, their more generous impulses assist in an ultimate conciliation.

In a certain hearing one of the employes was particularly radical. The only idea he had was "strike," and in every sentence and statement he mentioned strike, and its effect and benefits. He seemed to be attempting to stir up enthusiasm for a strike. His attitude finally became obnoxious, and someone bluntly knocked the chip from his

*Paper delivered to Twenty-seventh Annual Convention, The American Mining Congress.

†Commissioner, Industrial Commission of Colorado.

shoulder by the terse remark: "Don't you know it doesn't take brains to strike? It takes brains to get a good job and to keep it. Any fool can quit work. The careful thought of every employe is needed to prevent a strike." This quieted the obstreperous individual. In a very short time the commission took a recess, asked the parties to confer, and an agreement was reached.

On another occasion six men with set faces walked into the offices of the commission, separating into two groups of three. It was impossible to determine which were employes and which employers, but upon inquiry we found that a demand had been made by the employes for an increase in wages, and while having a conference with their employers—which resulted in a deadlock—someone suggested that they come to the commission with the matter. They wished to obey the law, but each was determined to fight the other to a finish.

After a short talk the two sides were separated and conferences held by the commission, first with one side and then with the other. Neither side was at a loss for words to describe the particular traits of the other, and the language used could not be found in any Sunday school lesson we reviewed. The employers said that the employes had made up their minds what the employers were going to pay them, and that settled the matter—except that the employers were not going to pay it! The employes knew that their hard-hearted employers would not give them any advance at all—and they were going to strike!

We found the employers willing to give the employes as much as the employes actually expected. We sparred back and forth between them until both sides were definitely pledged as to what they would do. We brought them together and announced that the matter was settled. Both sides were astonished. They shook hands with each other, almost hugged each other, and wondered why in hell they had come up to the commission to settle something they should have settled among themselves. They signed an agreement, each entirely pleased with the other and, possibly, disgusted with the commission.

The Industrial Commission law became effective August 1, 1915, and up to and including April 15, 1924, there had been 1,124 cases filed with the commission—75 strikes resulted; approximately 6½ percent.

Disputes of a national character cause the greatest difficulties. I refer to strikes such as the bituminous coal strikes. The bitterest industrial strikes in the state before the enactment of this law affected the mining industry. The law has been tested since its enactment by two great national coal strikes—the

strike of 1919 and the strike of 1921. Both of these strikes are such recent history that it is not necessary to repeat the details of either of them.

You will probably be surprised to learn that Colorado was the only state in the Union that produced practically a normal output from its mines during both controversies, and this was accomplished without the loss of life and without bloodshed.

The Colorado law gives labor something it has never had before—it gives labor



William I. Reilly

a tribunal before which it may present its grievances and through which a public investigation can be made regarding conditions of employment, wages and hours. Through its use labor can play the spotlight of publicity into the dark corners of unbearable conditions.

It deprives labor of none of its constitutional rights, however; the 30-day notice clause does prevent the hasty, ill-considered precipitation of immediate industrial conflict. The very fact that the 30 days' notice must be given undoubtedly affords opportunity to the more conservative of the labor movement to present their views and wise counsel before the hasty radical, by his ready tongue, can lead or drive his weaker associates into a turmoil that becomes more difficult of solution as it becomes more bitter.

The same 30-day clause tends to retard the hasty employer from attempting to make all economies at the expense of the human side of his industry. The very fact that he is brought to realize that notice must be given to a state board, that a public investigation may result, causes him to critically examine and survey his entire problem, with the result

that he finds the real causes of inefficiency or extravagance and remedies them to the advantage of himself and his employes.

Under the 30-day clause the employer can rest assured that the conditions within his plant cannot be changed, nor will his employes cease work, during said period; that only such changes as may be made upon mutual agreement can be enforced without such notice. The law does not interfere with the right of contract between employer and employes, and conditions can be changed at any time by employer and employes upon mutual agreement.

During the war period, when there was a shortage of man power, the tendency of the employer was to grant any wage demands made by the employes, irrespective of justice or the consequence to public welfare. Numerous protests were made to the commission and much argument brought to bear, to the effect that the primary object of the industrial law was not only to prevent industrial strikes but also to protect the public interest. A number of employers openly stated to the commission that it made no difference to them how much wages they paid the employes, because they could pass such wage on to the public, and probably often added an increased profit to the increased wages. The commission, when finally brought face to face with the direct question, felt constrained to decide that an agreement between employers and employes under the Colorado law was effective.

In the majority of the awards rendered by the commission, in which it has been called upon to fix a fair wage, the question has been principally one of fairness to the employe; however, in a number of instances the question not only involved fairness to the employe but also the question as to what wage the industry would bear. Of all the peculiar situations in this line that were presented to the commission, the one most difficult of solution was the one affecting the gold mining industry.

This industry presented to the commission the peculiar situation that the price of the product is absolutely fixed—that any increases in wages or in the cost of mining cannot be passed on to the public. In controversies in no other industry was the commission met with such a problem as in the gold mining industry. With the fixed price of the product on the one side, the question has resulted in the fixing of a wage, not such as was justified fully by living conditions—not one that was justified in comparison with the wages of labor of equal skill, ability and endurance in other industries—but involved the fixing of a wage such as to

allow the industry to continue and the community to exist.

The metal miners are probably among the best and most staple citizens engaged in any of the mining industries. Many own their own homes and are permanent residents of their respective communities. A great many of the present-day miners are old residents. The closing of a mine or mines means the desertion of old-time homes and the exodus of men to communities and employments unfamiliar, many of whom would be unfit, by reason of age and experience, to adjust themselves to new conditions and protect their families against want and need. The interests of the mine and of the miner must both be protected by some equitable agreement that will permit both to exist.

This is the condition the commission has found in many of the metal mining centers of its own state. The commission has found generally that both the operators and the employees were willing to concede for their mutual protection.

The working people are becoming more and more familiar with this law, and instead of quitting work when some grievance occurs simply notify the commission. The commission tells the employees to stay on the job and also immediately takes the matter up with the management, explains the law and, almost without exception, the law has been obeyed.

The Colorado law is not a compulsory arbitration law—it is a compulsory investigation law. It is my opinion that compulsory arbitration is absolutely impractical. It does not—and it cannot—fit into our social system nor our present theory of government. Compulsory arbitration would be to wages what government price fixing would be to commodities. When government price fixing has been made successful by law and has absolutely supplanted the industrial law of supply and demand, then only should compulsory arbitration be timidly attempted. Price-fixing deals with commodities, which are property rights; compulsory arbitration deals with human rights; human rights are higher than property rights. Strange to say, enthusiastic dreamers have attempted to try their theories on the most sacred of human rights before demonstrating their practical adaptation to those of less importance.

The Colorado law, of course, like all laws, is not perfect. It does, however, contain some practical features that are of great assistance in maintaining industrial peace. It was the outgrowth of a demand from both labor and capital for some assistance in their problems. Every regulatory law curtails some previous liberty—both employer and employee immediately found that it interfered with their individual determi-

nation to do as they pleased—at least, it delayed the “do,” and often eliminated the “unreasonable” from their determination.

Arbitrary employers who have refused their employees the privilege of conference and who have refused to discuss their mutual problems are by virtue of a compulsory investigation forced to meet their employees, to hearing their grievances, and to give the employees a statement of the employer's problems and of the conditions of the industry. The advantage of this one feature of the law for practical good is a complete answer to any disadvantage from a temporary delay of open hostilities.

The aim of every court should be justice. The aim of any commission will be fairness. The commission has no power of its own to enforce its awards. The only power back of the awards of the commission is public opinion. Public opinion is the final jury that settles industrial disputes. An impartial investigation, a just award alone can win its verdict.

DOLomite IN THE CYANIDE PROCESS

CALCINED dolomite has recently been sold as a substitute for lime in cyaniding gold and silver ores, the calcine being cheaper per ton than lime.

The results of experiments conducted at the Rare and Precious Metals Experiments Station of the Bureau of Mines, Reno, Nevada, indicate that in regular cyanide practice where cyanide solution is to be used repeatedly for extracting fresh batches of ore, the magnesium oxide content of calcined dolomite cannot be used advantageously to neutralize acidity.

Where an excess of calcined dolomite is used to prevent the building up of magnesium salts in solution, the magnesium oxide content takes no part in the reaction. If just enough calcined dolomite is used to neutralize acidity, magnesium salts will build up and eventually form a saturated solution in which the cyanide loss would be high unless an unusual amount of “bleeder” solution is run to waste.

In the cyanide treatment of certain ores calcined dolomite may be substituted for lime with profit. Calcined dolomite is as effective as lime in preventing cyanide loss. Calcined dolomite nearly parallels lime in its precipitating and settling effect and causes no difficulty in filtration of the solution, or in the precipitation of silver and zinc. Calcined dolomite equals lime in the quantity of precious metals recovered.

In treating certain ores by the cyanide process, the recovery of silver with the use of calcined dolomite as an alkaline agent is not equal to that obtained with

the use of lime. The use of magnesium oxide content of calcined dolomite would therefore be confined to neutralizing acidity and aiding settlement where the ore is crushed in water for amalgamation prior to cyanide treatment and in cyanide practice where the solution could be discarded or “bled” sufficiently to keep down excess of magnesium salts.

Calcined dolomite should not be purchased as a substitute for lime in the cyanide process without a thorough investigation as to its action on the ore to be treated and its effect on all operations connected with plant practice.

Copies of Serial 2648, U. S. Bureau of Mines, by E. S. Leaver, C. W. Davis, and J. A. Wolf, may be obtained from the Department of the Interior.

SULPHUR RESERVES

FOR years past existing sulphur companies have been scouring the world for new sulphur domes that can be profitably worked. The results have not been satisfactory by any means. Small domes have been located, but in most cases they have been too small to warrant the outlay necessary to extract the sulphur by means of the Frasch process. One small dome now under development is supposed to contain between 1,000,000 and 2,000,000 tons, hardly a year's consumption. It is doubted whether this sulphur can be extracted at a margin of profit that would justify the outlay for machinery, etc. There are a few others even smaller, but the cost of pumping the sulphur out would be too great.

Cost of producing sulphur is largely in the amount of oil used per ton of sulphur. Some of the older mines require from four to seven barrels per ton and this is a big item when oil costs \$1.50 a barrel. Not only are new sulphur deposits negligible, but one of the big mines that has been supplying the demand for a quarter of a century is nearing the end of its life. Texas Gulf sulphur claims a life of 25 years with less than 250 acres proved up. Union sulphur for 25 years has been taking its sulphur from territory covering not much more than 75 acres. As a result of dwindling production of the older mines, higher prices for sulphur are looked for later on.—*The Wall Street Journal*.

The silver dollar, which the government is attempting to bring into popular favor, was first authorized to be coined by the Act of April 2, 1792. After coining \$8,031,238 under this act, in 1873 the issue of the silver dollar was discontinued. It was again restored by the Act of February 28, 1878, from which time to December 31, 1904, when coinage was again discontinued, there was \$570, 272,610 put into circulation.



erlock

*The Mining Congress Journal Wishes You
A Happy and Prosperous New Year*

RE-DRAFTING COAL'S SCHEDULE OF PRICES

Prices Should Be Based On Slack, With Profit Increasing If Other Sizes Sell Higher, Rather Than On Lump, With The Loss Increasing, If Other Sizes Sell Lower

By GEORGE H. CUSHING

RECENTLY a bituminous coal operator fell into financial difficulty, and his mine had to be sold at public auction. The property consisted of a considerable tract of excellent coal owned in fee; a larger tract under lease; and a plant which, including the town, represented an outlay that, when amortized properly, showed a remaining cash value of \$400,000. Only one bidder for this property appeared. He offered \$25,000 and was induced by the auctioneer to raise it to \$40,000. This was 10 cents on the dollar of the cash value of the plant alone. At that price, however, the property was sold.

Concurrently some keen investor inquired for coal property through certain banking channels. Their stipulations were that the purchase price should be approximately on the price basis just quoted.

These two things mean that the value of bituminous coal property has reached absolute bottom because, obviously, the selling price of coal likewise has reached absolute bottom. From this pit of demoralization there must be, and will be, a reaction. And if it be true that coal has struck bottom, any reaction, of course, must be toward higher prices and toward true intrinsic values.

As we approach the turning point, its leaders are indulging in an elaborate discussion of the likely future of the coal industry. The most hopeful indication is that as physical reorganization becomes inevitable a readjustment of the fundamental theories according to which the coal business has been done are recognized to be equally inevitable. And when the readjustment of policies and the reorganization of plants take place, it now seems clear that one of the most important changes will be a complete renovation of the price policy. Therefore, as the leaders in the coal industry approach the inevitable readjustment, they are studying the price structures of other industries, many of which are situated in somewhat the same position as bituminous coal finds itself. That is, in those industries there are, and must be, a variety of products. Some of these products naturally sell more readily than do others; some naturally command, therefore, a higher price than do others. To make use of a familiar classification, some of these products approach the luxury classification; others remain on the unattractive plane of simple utility.

For example, in the packing industry the basic or utility product is the meat

portion of the animal. It has its by-products ranging from gelatin through pearl buttons to violin strings, all of which border upon the luxury classification.

For another example, attention is being directed to the oil industry which splits the crude petroleum into its component parts. The refining process yields gasoline, kerosene, and lubricants, which, in some particulars, run toward the luxury classification. As a result of refining, a percentage of the oil is left which, at present, is valuable mainly for fuel purposes.

In coal we find a situation which is closely similar in many commercial respects. That is, the prepared sizes climb toward the luxury classification whereas the mine run and the slack coal (or screenings) drop back into the class of plain utility.

The situation as to the diversity of products being virtually the same in all industries, the natural questions which have arisen in the mind of coal's leaders have had to do with the price policy in the other industry and the price policy which ought to govern in coal. Even a cursory study has made it plain that while the policy may have been variable in past in these various industries, the tendency is toward some uniformity. It is peculiarly pertinent that the packing industry has made much of the fact that on the meat portion of the animal treated, it has made, on the average, only a quarter of a cent a pound, and sometimes even less. The significant part of this statement is that the packing industry has sold its utility product at a fraction over cost. It thus has arranged to keep itself whole while disposing of its slowest seller and then has held itself in position to profit by the more attractive prices returned by its luxury products. We search here in vain for any evidence that on any one of many products the packers take a loss for granted and hope to retrieve it by higher prices elsewhere.

Regardless of their long-sustained reputation for shrewdness, it remains true that the oil industry obtained its money from the attractive prices on gasoline, lubricants, and kerosene, and then sold its fuel oil for what it would bring when in competition with coal. Therefore, and for a long time, it adopted the policy of basing its price on

its luxury products and, later, of diminishing them by losing money on its plain utility product. Recently, however, the oil industry has come to the conclusion that to pursue such a course was a basic and fatal mistake. Therefore, it is planning to reform its prices by basing all of them on the fuel value of the oil. This means it proposes to keep itself whole by advancing the selling price of fuel oil to the point where it must return at least cost. After that has been done, oil will be in position to profit by any increase in the sales price of the other things.

Bituminous coal has had the most extreme price policy of any of these related industries. It has rested its whole hope of profit on, practically, the selling price of the lump coal. If that price was, on guess, sufficiently high, a fair return was taken for granted. It then began to diminish its imagined profits by accepting a much lower price on the other sizes. It was inevitable that the outcome would be loss, instead of a profit. And, it worked out that way.

Specifically, a ready sale for the lump was assumed because certain furnaces were so constructed that they had to use it. Therefore, the lump coal carried the highest price. The egg coal was not so much in demand; therefore, it took a slightly lower price. The nut coal, in recent years, has had a demand approaching that for lump. This has carried accordingly a fairly high price. But when it came to disposing of the mine-run coal and slack (or screenings) the operators looked upon them as plain utility products which must be sold for cost, or less. It was taken for granted that these sizes would stand the operator such a substantial loss that the profit made on the sale of lump, egg, and nut, would, on the average, be wiped out.

This price policy has become increasingly dangerous as the industrial demand has increased without a corresponding increase in the demand for the luxury products. To be specific on that score, men of experience know that, fifteen years ago, the domestic trade, which takes the lump coal, was absorbing one-third the total production. The railroads, public utilities, and industries took the other two-thirds. In those days, it was possible to get a price on one-third of the product which would offset the fact that another one-third was sold at cost, and another one-third was sold at a loss. Today, however, the industrial demand has increased so much that the domestic

trade takes never more than 15 percent of the coal, leaving 85 percent to go into industrial uses. It is no longer possible to get such a price on 15 percent of the production as will allow 35 percent of it to be sold at cost, and 50 percent of it to be sold at a loss. The need, therefore, has come for a complete change in the price policy. This need has been emphasized by the fact that modern methods of preparation tend to increase rather than diminish the percentage of slack coal (or screenings) to the total output. That is to say, fifteen years ago, slack (or screenings) made up from 20 percent to 35 percent of the production. Today, the slack coal (or screenings) constitutes from 30 percent to 50 percent of the production, with emphasis upon the 50 percent.

All these things being taken into account, it is no longer possible to sell the slack coal (or screenings) at a loss and hope to have a profitable business on any price that can be obtained for the other sizes. This is suggesting to coal men a complete reversal of their price policy. They are coming to understand the wisdom of the packing industry, which demands for its utility product at least its cost, plus a very modest margin of profit. They appreciate the need to add to that profit by such moderate increases as they can obtain in the price of the other sizes. This proposal amounts to such a violent change of policy as is indicated by the following statement: Heretofore, the coal men have collected a profit on one or two sizes and have subtracted from it steadily by taking a loss on all of the other sizes. Today, the proposal is to get at least cost, plus some little profit, for the slack and mine run, and then add to that profit anything that comes from selling the other sizes at a higher price.

From what has previously been said, it has been made apparent that this change of price is necessary to the continued solvency of the bituminous industry. That is, the relative proportions of the sizes have so changed that the old policy cannot be adhered to and the industry avoid bankruptcy. The industry cannot afford perpetual bankruptcy. The nation cannot afford to have a bankrupt source of its fuel supply. Therefore, whether the subject is considered from the standpoint of the operators themselves, as business men, or from the standpoint of the nation as a consumer of coal, the price policy will have to be changed. If that change is to come, the operators see no better basis than the one just described, namely, to get for the utility product at least its cost, and for the other products such prices as the market will stand.

It is obvious, of course, that any effort to put this new policy into effect will

demand as a preliminary some form of organization. Just what that form shall be is now the subject of a very pointed debate. However, it is a hopeful sign that the industry is very much disposed to find something to do before it effects an organization to carry its purpose into effect. It is getting its purpose first and its organization rather than creating an institution and then setting out to find something for it to do.

As the discussion proceeds, one thing becomes apparent on its face. That is that no organization, or other scheme, will be successful until, first, it is known that it can do what is necessary to force a price for mine run and slack coal (or screenings) upon the consumer. And, in the candor which such discussion involves, it becomes apparent that the only thing which will force the consumer to pay a price for these depreciated sizes is to keep them off the market until the market is ready to absorb them. The proposed method by which this thing is to be done has, so far, developed into three concrete suggestions.

The first is to put the slack coal, not currently needed, in storage until it may be needed.

The second is to dump the slack either back into the gob piles in the mine, or on the ground in the form of a culm pile—to put it beyond easy reach in any event.

The third is to form a cooperative company among the coal operators of each district for the disposition of the slack and to finance this organization sufficiently to allow it to go into the business of translating the slack into electric power, and into gas, or to treat it in by-product ovens.

At the moment, a very lively debate is in progress as to the relative merits of these three methods. As the coal industry is now organized, storage in one period and re-sale at another is impractical because the fresh mined coal would always ruin the market for the stored coal.

As the coal industry is now organized, or while it is in its present mood, it seems impossible to expect any such a cooperative movement as would lead to translation of slack into electric power, gas, or by-products.

Therefore, as the industry is at present organized, the only available remedy seems to be to create culm piles which are immediately unrecoverable. And, regardless of the superior merits of the cooperative use of this coal, we may expect the culm pile treatment. This conclusion, however, is contingent upon the kind of organization that is created, now that the purpose has been made clear.

RHODE ISLAND COAL

THE well-known Rhode Island coal of Geological Survey reports is to be thoroughly investigated by the State of Massachusetts. Though referred to by the Department of the Interior in this way, the coal underlies Massachusetts as well as Rhode Island. A great section of the southeastern part of the Bay State, including the counties of Bristol and Plymouth, contains a strata of high volatile anthracite coal which when occasionally mined has been used for extracting its tar and other derivatives.

The Massachusetts Special Commission on the Necessities of Life, Eugene Hultman, chairman, in a report filed with the legislature, recommends a commission of three experts be appointed by the Governor to ascertain by borings the quality and quantity of coal available and providing the appropriation of \$50,000 for the work. The new commission, in case it finds the mining of these coal deposits feasible, is instructed to submit a draft of a statute for the regulation of mining.

The commission is to be empowered to enter private lands for the purpose of exploration and would be given two years in which to complete its work.

The Commission on the Necessities of Life filed a further lengthy report containing advice and opinions of noted engineers. In general, it appears that several very valuable veins of coal exist in Massachusetts which would be suitable for household use. The lower volatile coals apparently lie deeper, a factor which has militated against mining in the past. Repeated efforts by the state have been made to secure private company cooperation in exploiting this coal but generally without avail as the fuel has not had much of a reputation in the past in the local trade.—*Boston News Bureau.*

Frederick R. Low, retiring president of the American Society of Mechanical Engineers, says that the supply of anthracite coal may run out in 100 years and that of bituminous in 500 years, and that when the secret of the vegetable cell is discovered it may be possible to utilize the stream of energy that comes from the sun to the earth. At present, according to Mr. Low, the earth's surface absorbs from the sun heat energy equivalent to about 3,900 foot-pounds a square foot each minute. This means that the earth is absorbing energy at the rate of more than 162 trillion horsepower, which is in most part immediately radiated back into space.

COORDINATION OF MINING STANDARDS*

Chairman Holbrook Of The Mining Correlating Committee Of The American Engineering Standards Committee, Outlines Possibilities Of Mining Standards And Divides Procedure Into Three Classifications—Recommended Practice, Specification And Exact Procedure

"STANDARDIZATION is all right in theory, but it does not fit my special case; my mine and local conditions are different from any others."

"I am not going to tie myself up to use something I don't want."

"Standardization means using the same old methods and materials with no experimentation and no advancement."

These three sentences register practically all the opposition I have heard to standardization. I believe the easiest way to dispose of these arguments is to agree that if any of them will result from any program of standardization, we do not want standardization. A. W. Whitney, chairman of the American Engineering Standards Committee, has said: "Standardization, like any other powerful tool, is dangerous if misused; it may be begun too early, it may be carried too far, and it may be applied to improper fields. It is peculiarly important, with the rapidly growing interest in the practical use of standardization, that someone should be responsible for seeing that development takes place along right and reasonable lines. Standardization, if wrongly used, will produce a fixity and rigidity that will impede progress; but if rightly used it will vitalize and quicken industry; for it will release the mind and imagination from the pressure of unessential detail and tedium of meaningless variety and give the opportunity for new advances."

I have before me a list of about 300 of the great industrial corporations of America who are sustaining members of the American Engineering Standards Committee. Of these at least 30 are engaged in mining or in supplying the wants of the mining industry. They have recognized that standardization in engineering is worthy of their support.

The branch of this standardization in which we are interested in the mining industry is admittedly a complex problem for standardization.

One who has ever lost a nut from a bolt on his automobile will readily agree that screw threads should be standardized. It is not quite so apparent, however, why and how a complex subject like mining methods is capable of like standardization.

As a matter of fact, there are at least three classes of standardization work applicable to the mining industry, all of

By E. A. HOLBROOK†

which can be of real benefit, although all may not become American standards.

The first may be called best or recommended practice standardization. Thus an ideal system of room and pillar mining for coal or an overhand stoping system for ore may be laid down. It is not to be expected that every mine using the system will follow all the details of the ideal method, as local conditions, both natural and man made, will cause divergence. All of you, however, will admit that mention of overhand stoping brings to your mind an exact method of mining, differing among mines only as to details. Although in mining methods a certain standardization has been the common possession of mining men for many years, yet in any and all work around mines something of this best practice standardization is possible and feasible.

The second type of mining standardization let us call specification standardization. It deals entirely with materials, things which in themselves are capable of exact specification and measurement, whose non-adherence to an accepted standard may cause rejection. Under this heading come rail sizes and gauges, electrical appliances, wire ropes and, in fact, any and all material which might come through the mine warehouse. As an example, the War Department instructions to its procurement officers and others who have to do with specification and with standardization state: "The general principle to be observed in the writing of specifications is that a proper specification is one that leaves nothing to the imagination but is such that bidders may know just what they are expected to furnish and, in general, what steps the War Department will take to satisfy itself that the specification is complied with before the article will be accepted and paid for." Such specifications generally demand standardization.

The final type of standards I shall call standardization by exact procedure. For example, laying out an exact method for testing and approving explosives. This is more than a recommended practice, since it does not admit of variation. It, on the other hand, is not a material specification, since methods and not materials are involved in the standard.

Practically all of the standardization work in mining during the past years

falls into one or more of these three classes.

Best or recommended practice is the sort of a standard that should forever be open to discussion and improvement. It may not be the sort of thing that can be made into a universally accepted American standard. Nevertheless, every discussion, every suggestion, improves our procedure, be it method of mining, the teaching of mining or other mining work.

Specification standardization is the thing that most industrial engineers have in mind when they think of the subject. We can agree within certain limits on proper hose coupling threads, locomotive sizes, electrical equipment and other things of a material nature. You will all agree that the long time gain to a mining company from having these engineering materials standardized is greater than any gain which might come from non-adherence to these standards. Once a standard here is fixed, manufacturers and users should have proper notice of any proposed change of the standard. The door of change should not be closed, only guarded. The fundamental and essential thing to bear in mind for this class of standards is that the mining industry is only one of many users and that either standardization or change in these essentials applied to our industry reach out and affect a ramification of interests, seeming without end. Suppose, for example, we consider the standardization of forged hand tools like sledge hammers. It may be that the miner requires a different series of sizes and a different line of steel in his sledge hammers from those which are needed by the railroad track hand, or the blacksmith, or the building construction industry. If so, there can be no doubt but what he should have them. If, however, all these types can be standardized into a single series, what will be the saving in production costs? Think of a factory tooled up to make 100 styles where six or eight would serve every purpose. Who pays the bill?

The blow struck by a sledge hammer is much the same whether it is on the highway, the railroad, or underground, and the strength of the man who handles the tool ought to be about the same under the three conditions. So, while no one will claim that one single style of hammer will do for all work, it does seem reasonable that the series of sizes needed could very likely (Continued on page 36)

*Paper delivered to Twenty-seventh Annual Convention, The American Mining Congress.

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LEGISLATIVE REVIEW

Congress Pressed For Time—Short Session Taken Up With Loose Ends Of Pending Legislation—Power Development Main Topic Of Discussion—Few New Legislative Proposals Advanced



WITH only three months at its command during which it must wind up uncompleted legislation which has been pending for nearly two years, Congress has buckled down to the task of putting through in ninety days a program that would ordinarily require eight months. Principal attention is being given to bills appropriating funds for the support of the government during the year beginning July 1, 1925, which will total over two billion dollars. Rapid progress is being made on these measures. The House has already passed bills carrying funds for the Interior and Agricultural Departments and has before it measures providing money for the Navy, Postoffice and Treasury Departments. Appropriation bills are being considered by the House to the exclusion of practically all other business, except measures affecting local communities or of a private and unimportant public character.

Early action is expected to be taken by the House on the bill passed by the Senate at the last session directing the Treasury to purchase fourteen million ounces of silver at \$1 per ounce under the Pittman Act. This bill is now before the House Banking Committee which plans to consider it after the House disposes of a general banking bill now pending.

No action is expected to be taken by Congress on proposed blue sky legislation. The Denison bill on this subject is still on the House calendar, where it was left uncompleted during its consideration last March. Even if it should pass the House the time would be short for the Senate to consider the measure.

Power development has been the principal subject of debate in the Senate. This has arisen in connection with the proposed lease of the Muscle Shoals, Alabama, nitrate and power project.

Very few new legislative proposals have been advanced in either House or Senate. In the field of mining new measures propose helium conservation; and new silver and copper coinage.

Tax and tariff revision proposals have been conspicuous by their absence, the opinion being that this and other general

legislation should be deferred to the next regular and longer session.

Before many of the states have had time to pass on the question, a bill has been introduced to repeal the law proposing a constitutional amendment to regulate child labor.

The Senate Gold and Silver Commission has not completed its various investigations covering mining laws, cost of mine operation, fluctuation of exchange, and greater use of silver, and will be unable to recommend legislation at this session. It is expected the commission will be authorized to continue its investigations beyond March 4, when its present authority expires, and that it will submit a legislative program in December, 1925.

MINING

Helium Conservation

H. R. 10405. Introduced by Mr. Watkins (Dem., Ore.). Referred to the Military Committee. This measure is designed to conserve helium gas and authorizes the President to prohibit the export of this gas; to set aside lands necessary to control its production and to erect storage facilities for helium gas.

Coinage

H. J. Res. 299. Introduced by Mr. Bland (Dem., Va.). Referred to the Library Committee. It proposes the coinage of 300,000 50-cent silver coins in commemoration of the one hundred and fiftieth anniversary of the Battle of Yorktown.

H. R. 10735. Introduced (by request) by Mr. Colton (Rep., Utah). Referred to the Committee on Coinage. It proposes to authorize the coinage of a 20-cent silver piece and a 2-cent copper piece.

Tax Refund

H. R. 10672. Introduced by Mr. Taylor (Rep., Tenn.). Referred to the Committee on Claims. It proposes to pay \$17,000 to the Guamoco Mining Company of Greenville, Tenn., representing overpayment of 1917 excess profits taxes.

TAXATION

Publicity Repeal

H. R. 9818. Introduced by Mr. Watson (Rep., Pa.). Referred to the Committee on Ways and Means. This bill seeks to repeal the law authorizing public inspection of income tax returns. It would make such returns subject to inspection only on order of the President, the House Ways and Means Committee, the

Senate Finance Committee, special committees of Congress, officers of states and corporation stockholders, the latter being confined to companies in which they hold stock.

H. R. 10740. Introduced (by request) by Mr. Colton (Rep., Utah). Referred to the Committee on Banking and Currency. This bill proposes a tax of 1 cent on each dollar of debt, the purpose being to clear credits and reduce the public debt.

LABOR

Child Labor

S. J. Res. 148. Introduced by Mr. Dial (Dem., S. C.). Referred to the Judiciary Committee. This proposes to repeal the proposed child labor constitutional amendment.

Alien Registration

H. R. 10469. Introduced by Mr. Aswell (Dem., La.). Referred to the Committee on Immigration. This bill provides a system for registration of aliens in the United States annually, the first registration to cost \$10 and each succeeding listing \$5.

Mexican Labor

H. Res. 378. Introduced by Mr. La Guardia (Rep., N. Y.). Referred to the Committee on Immigration. This resolution calls on the Secretary of Labor for a report as to the number of Mexicans who entered the United States from July 1 to December 1, 1924, and the nature of their employment.

TARIFF

Granite Duty

H. R. 10475. Introduced (by request) by Mr. Frothingham (Rep., Mass.). Referred to the Committee on Ways and Means. It proposes a duty of 100 percent ad valorem on imported granite.

H. R. 9813. Introduced by Mr. Knutson (Rep., Minn.). Referred to the Committee on Ways and Means. This is similar to the foregoing.

TRANSPORTATION

Railroad Consolidation

H. R. 10470. Introduced by Mr. Winslow (Rep., Mass.). Referred to the Committee on Interstate Commerce. This measure proposes to consolidate railroads into a number of strong and efficient systems which will maintain existing routes of commerce and preserve effective competition, so as to eliminate unnecessary duplication of service.

IMPORTANT BILLS REVIEWED IN THIS ISSUE

MINING—

H. R. 10405: Watkins (D.), Ore. Helium conservation.

H. J. Res. 299: Bland (D.), Va. Coinage.

H. R. 10735: Colton (R.), Utah. Coinage.

H. R. 10672: Taylor (R.), Tenn. Tax Refund.

TAXATION—

H. R. 9818: Watson (R.), Pa. Publicity Repeal.

H. R. 10740: Colton (R.), Utah. Debt Tax.

LABOR—

S. J. Res. 148: Dial (D.), S. C. Child Labor Repeal.

H. R. 10469: Aswell (D.), La. Alien Registration.

H. Res. 378: La Guardia (R.), N. Y. Mexican Labor.

TARIFF—

H. R. 10475: Frothingham (R.), Mass. Granite Duty.

H. R. 9813: Knutson (R.), Minn. Granite Duty.

TRANSPORTATION—

H. R. 10470: Winslow (R.), Mass. Rail Consolidation.

H. R. 10731: Colton (R.), Utah. Rail Rates.

H. R. 10786: McLeod (R.), Mich. Commercial Aviation.

H. R. 10682: Edmonds (R.), Pa. Merchant Marine.

INDUSTRY—

H. R. 10732: Colton (R.), Utah. Anti-Trust.

S. 3565: Bruce (D.), Md. Commerce Corporation.

H. R. 10359: Newton (R.), Minn. Alien Property.

S. 3507: Underwood (D.), Ala. Power Development.

H. R. 10723: Fredericks (R.), Calif. Colorado River.

Rail Rates

H. R. 10731. Introduced (by request) by Mr. Colton (Rep., Utah). Referred to the Committee on Interstate Commerce. This bill proposes that the reasonable rate for the transportation of freight shall be the competitive rate; that normal competition between rail carriers shall be maintained and facilitated, both as to rates and service; that normal competition between rail carriers and coastwise shipping, river shipping, motor carriers, and other means of transportation shall be maintained in order to settle rates for the transportation of freight at proper and reasonable levels; that rate competition by railroads shall be restricted to general base rate, and that there shall be no special rates by rail carriers for the purpose of competition against other classes of carriers or for the purpose of discrimination against or in favor of any commodity or community.

The bill would require railroads to establish base rates on the ton mile scale for transporting 1 ton of 2,000 pounds 1 mile. Special car tonnage rates and class rates are also proposed.

Commercial Aviation

H. R. 10786. Introduced by Mr. McLeod (Rep., Mich.). Referred to the Committee on Interstate Commerce. This bill proposes a government loan of \$100,000,000 at 3 percent interest to develop commercial aviation under the Department of Commerce. Half of the loan would be repaid the Government in five years and the balance two years later.

Government Shipping

H. R. 10734. Introduced (by request) by Mr. Colton (Rep., Utah). Referred to the Committee on Merchant Marine. This bill provides for operation of all merchant vessels of the Government under the War Department. These would include Shipping Board vessels having a speed of more than 12 knots,

and tankers. Other Shipping Board vessels would be transferred to the Department of Commerce.

Merchant Marine

H. R. 10682. Introduced by Mr. Edmonds (Rep., Pa.). Referred to the Committee on Merchant Marine. This bill creates in the Department of Commerce an undersecretary for merchant marine; and proposes to legislate concerning marine insurance and carriage of goods by sea. In providing for regulation of rail and water rates under the Interstate Commerce Commission the bill declares the policy of Congress to be "to promote, encourage and develop water transportation, service and facilities and to foster and preserve rail and water transportation."

INDUSTRY

Antitrust

H. R. 10732. Introduced (by request) by Mr. Colton (Rep., Utah). Referred to the Committee on Interstate Commerce. This bill seeks to prohibit contracts, combinations, etc., to monopolize or control trade or to fix prices. It also prohibits acts of interference with transportation facilities. Penalties of \$5,000 fine and one year imprisonment are provided for violation of the act.

Commerce Corporation

S. 3565. Introduced by Mr. Bruce (Dem., Md.). Referred to the Judiciary Committee. It proposes to create a World Commerce Corporation and foreign trade zones to extend American commerce. The incorporators are: Robert L. Luce, George P. Toby, Samuel C. Redman, George R. Wales and D. S. Fletcher. The corporation is authorized to produce or acquire petroleum and other raw materials, establish fuel stations, and to drill for, mine and produce minerals and metals. Its capital would be \$2,000,000,000 of \$100 per share. The corporation would make an annual report to the Secretary of Commerce.

Similar corporations may be organized by three or more persons with capital stock up to \$10,000,000.

Alien Property

H. R. 10359. Introduced by Mr. Newton (Rep., Minn.). Referred to the Interstate Commerce Committee. It proposes to return to their owners the property or money held by the Alien Property Custodian which was seized during the war.

Power Development

S. 3507. Introduced by Mr. Underwood (Dem., Ala.). Referred to the Committee on Agriculture. This is a substitute for pending bills on the lease of the Muscle Shoals and Sheffield, Ala., nitrate and power project which has been debated in the Senate since December 3. The bill dedicates these plants for national defense in war and production of fertilizer and power in peace. Lease of the property for 50 years by the War Department is authorized at an annual rental of 4 percent of the money spent on Dam No. 2. The lease will also fix the terms and conditions under which surplus electric power may be sold. If the property is not leased by July, 1925, the Government is to operate the plant. Operation of the plant will be supervised by a corporation of five persons appointed by the War Department, with \$50,000,000 capital. Completion of Dam No. 3 in the Tennessee River at Muscle Shoals is authorized.

An amendment by Senator McKellar (Dem., Tenn.) was adopted, forbidding alien control of the property.

An amendment by Senator Howell (Rep., Nebr.), limiting profits on fertilizer produced by the plant to 8 percent, was defeated. An amendment by the Senator proposed to exempt the United States from constructing Dam No. 3. Another amendment would require the production of phosphoric acid

(Continued on page 36)

THE NATION'S VIEWPOINT

A Digest Of The Expressed Opinions Of Leaders In American Affairs

HAS the government the right to conscript private property during either times of war or peace? This question was brought up before Congress on December 3, in the discussion of the bill which proposes to conscript both property and labor for war purposes.

Mr. Huddleston, "the gentleman from Alabama," insists that the proposal is unworkable and impracticable, saying, "The proposal to conscript property for war is a direct attack upon the institution of private property such as would be worthy of extreme communism." Continuing, he said:

"Constantly we are warned by the champions of property rights that there is danger that the propertyless multitude may strike at private ownership as an institution. Here we have an attack on property by the government itself. A precedent is established of subverting the owner's interest because of an emergency due to war, but war is merely one of many conceivable causes of national emergencies. Flood, famine and plague may produce emergencies as great as war. If private ownership may be set aside for a war emergency, it may with propriety be set aside on account of other emergencies, and at least the principle being established, it is left for those in position of decision to say what is an 'emergency.'

"The propertyless mass may conceive of an economic emergency arising from the collection of natural resources and wealth into the control of a few. The proletariat may find in the conscription of property for a war emergency a precedent for confiscation to remedy economic conditions. The attack on property, started from above by those who control the machinery of government, may yet be offered as an excuse for an attack on property from those dissatisfied with the distribution of wealth.

"It is fundamental in the American system that the Constitution remains in operation alike during peace and war and that its safeguards are never suspended.

"It makes no difference whether the conscription of property takes the form of price fixing or of physical seizure and use, it is a taking of property. * * * If conscription of property is proper, then the Government is warranted in seeing to it that the most desirable property is available for the taking. And again there

is no bounds beyond which officialdom may not go in meddling with the affairs of the citizen.

"It is undoubtedly true that our civilization is developing toward collectivism, and that the rights of the individual are held in diminishing regard. Conscription of men and property can be excused only on the principles of collectivism. Unless we are prepared to accept in its entirety the philosophy of collectivism, we should oppose conscription in all its forms, or, if accepting anything of conscription at all, carry it no further than the occasion absolutely required.

* * * Those who object to Government ownership of railroads and other utilities should recognize that the proposal under discussion goes infinitely further toward collectivism.

"There are many who advocate peace-time price fixing for monopolized products or to prevent undue profits. The answer of their opponents is that freedom of contract is inherent to our system and fundamental. If, however, prices may be fixed because of a war emergency, they may with propriety be fixed because of any emergency, or for other good cause. In conscription by price fixing, a precedent will be found for price fixing at any and all times—and away with the freedom of contract."

A tariff on minerals, which has been so dear to the hearts of western metal operators, is coming into its own in the South. That eminent exponent of our Southern States—the *Manufacturers Record*—in a recent editorial points out that the South is returning to the original Democratic policy of protection. Mr. Edmonds says, "Under the impetus of a straightforward educational campaign, unconfused by politics, the South now may be well described as turning from its mistaken policy of free trade, or tariff for revenue only, to the protective tariff as first instituted by Jefferson and Madison and later supported by Andrew Jackson. This change of heart is not fickle desertion from the old love to a new, but rather the resumption of an old devotion which had been interrupted by a foolish flirtation." Continuing, the *Record* believes:

"The pendulum swings. In 1789 the Democratic party, as exemplified by Jefferson and Madison, advocated and introduced a protective tariff—avowedly a protective tariff; about 1816 the South, always the heart of

the Democratic party, moved by cheap cotton production, turned to free trade; in 1922 one saw 37 percent of the Democratic senators in Congress voting for heavy increase in some duties, 49 percent voting against reducing such duties and 11 percent voting for the passage of a protective-tariff bill.

"We should be able to vote our ticket—the Democrat ticket—without feeling that the party's position on this important question will bring distress to our people. I do not wish to aid in disrupting the great party to which most of us owe allegiance. But, I do want to see the leading minds in it recognize that the tariff is a purely economic question of protection, essential if they are to compete in their own markets against foreigners who, without protection, can undersell them because of the lower living standards of the labor with which they produce.

"Right there is the very heart—the very core—of the alternative: Shall American standards of income and living be maintained through a protective tariff; or, shall they be razed to the ground level of poverty-stricken Europe, or, even worse, of the pauper Orient? Under the American protective tariff, American working men and women in every line of activity receive the highest pay ever known to the world, and live in comfort and near-luxury never before known in the history of civilization. Under free trade, or a tariff for revenue only, as American experience invariably has proved, wages fall to pauper levels, unemployment develops and spreads, soup kitchens and bread lines become national institutions, and misery is profound and nation-wide.

"We want to save the home markets, the best in all the world, for our home people. We at least want to make them so that our home people can offer competition to the foreigner. Ninety percent of the products of the soil in America are marketed in America. The trade of Louisiana is worth more to the farmers of the United States than the trade of all France. The trade of Pennsylvania is worth more to the farmers of the United States than the trade of all Great Britain, and the trade of any of the other states is worth more to the United States than the trade of any of the other countries.

"These are facts that are not generally recognized, but they are

tremendously important, and we must get them before the farmers of the South."

Prosperity is the keynote of the times. Even our "silent" President breaks his rule, when in his message to Congress, he emphasizes the outlook for a prosperous nation. However, with characteristic caution he presages that prosperity upon the manner in which Congress handles the appropriation measures. *The Wall Street Journal* sums up his arguments in the following interesting manner:

"Under the assurance of a reasonable system of taxation,' said President Coolidge in his message, 'there is every prospect of an era of prosperity of unprecedented proportions.' A further reading of his message shows that the era of prosperity depends upon the action of Congress in regard to appropriations. It is incumbent upon the people, therefore, to keep careful watch of the Congressional action.

"The Budget Bureau estimates that at the close of the fiscal year 1926, under the present tax law, the surplus revenue should amount to \$343,714,000. Plainly Congress can make a reduction of at least \$300,000,000 a year in taxation, which would be a boon to business. But the danger is that with such a large surplus in the Treasury, Congress, instead of lightening the burden, will leave it where it is and proceed to spend that money.

"The President stated that the disaster experienced by the farmers in the past four years ponder on these measure to taxation; that the depression that overtook business was due in no small measure to taxation; that the shrinkage in values in 1920 was in no small measure the effect of taxes. Let the people who have suffered loss in the past few years was due in no small statements.

"There is a considerable body of opinion, fostered by those who delight in spending, that high taxes are borne by the wealthy and thus the public gains by large government expenditures. 'This,' the President said, 'is a fallacy.' Read carefully this statement:

"No one can escape being affected

by the cost of government. It has a direct bearing upon wages. It is felt in the prices of food, clothing, fuel and rent."

"Every wage earner in the land meets the cost of maintenance of his family by his own work. In just the same way the cost of the government is met by the work of all the people. There is no other way. 'The higher these costs of government become the more the people must work for the government. The less the costs are the

Workers, being the most widely discussed candidate for this appointment.

The Wall Street Journal in an interesting editorial entitled "For the Dignity of Labor" makes the following interesting comment:

"There is an interesting report in political circles that John L. Lewis, president of the United Mine Workers of America, may become Secretary of Labor, succeeding James J. Davis. It must be hoped by all well-wishers of the Coolidge administration that no such plan is on the cards.

"James J. Davis is the man who should succeed himself as Secretary of Labor, if he can be prevailed upon to continue at this post, although he has expressed a wish many times over, if not a determination, to retire on the fourth of March next.

"Mr. Davis has dignified the office and all labor. He has been a creditable member of the Cabinet and he has stood for the highest that is in labor, and for true Americanism.

"He also stands for more. He stands for better standards of education in this country; for a system of education uniting brain and hand, that would practically teach the youth of our land to be independent, to stand on the earth with ownership and ability to serve and be served.

"The allegation in favor of Lewis is that he sees the handwriting on the wall for his organization; that the striking miners in their absurd demands and their attempts to control property and output without ownership are beaten; and that some way must be found for Lewis to save his face, accept another office, and leave a successor to make the adjustment in mine labor which he is unable to do.

"The allegation against Lewis—although it may not have appeared in print—is that he was the real promoter of the railroad shopmen's strike, and that his object was to stop the movement to market of non-union coal.

"In the end this was a good thing for the railroads, which now have better men and better shop service, and can thus render better service to the public. But it was a pity to have sacrificed the old shop employees in a



Philadelphia Evening Public Ledger

more the people can work for themselves."

"Unless there is a reasonable system of taxation the 'era of prosperity of unprecedented proportions' cannot be expected to materialize. Increasing appropriations would render such tax reductions impossible. The result would be the people would be called upon to give more of their work to the government and enjoy the benefits of less of it themselves. It is to the interest of all that they watch the appropriations and demand of Congress a rigid adherence to the President's policy of economy in the government."

With the election of President Coolidge assured, rumor immediately busied itself with speculation as to the Cabinet personnel after March 4, 1925. The frank avowal of Mr. James J. Davis, Secretary of Labor, that he wished to retire from public life immediately brought that Cabinet position to the forefront, Mr. John L. Lewis, of the United Mine

futile effort to help Mr. Lewis' miners' union.

"When Mr. Lewis is sidetracked, he should not be moved upward."

Coal trade journals quite generally discredit the rumor, and *The Black Diamond* of Chicago, in reprinting an editorial from the Chicago Journal of Commerce, insists that while Mr. Lewis was

"once considered one of the ablest and most constructive leaders of organized labor, he is now harried by the revolt in Pennsylvania, by the presence of 80,000 unemployed union miners in Illinois, Indiana, Ohio and Pennsylvania, and by signal defeats of unionism in West Virginia, western Kentucky, parts of eastern Kentucky, and parts of Pennsylvania.

"So arbitrary has he been that the United Mine Workers of America now face disintegration. A hundred thousand former union members have now gone over to non-unionism. The heaviest losses have been incurred in western Kentucky, which was formerly completely unionized but is now mainly non-union, and in West Virginia, where 85 percent of the former members of the union have cut the umbilical cord.

"These losses have been the result of Mr. Lewis' stout stand in support of the Jacksonville agreement, which provided for a three-year continuation of the peak wage-scale of post-war days. Apparently Mr. Lewis, rather than abate the wage provisions of that agreement, would allow the destruction of the coal-mining industry in Ohio, Indiana, Illinois and western Pennsylvania.

"With this record of past and present losses and of impending disaster, Mr. Lewis is now an active candidate for the Secretaryship of Labor, to succeed James J. Davis, who plans to retire on March 4. Mr. Davis started life as a worker with his hands. In youth he was an iron-puddler. Born in another land, he found America a place in which he could come up from the ranks. As Secretary of Labor, his administration has not been entirely satisfactory either to organized labor or to industry, for his leanings have not been predominantly either way; but certain it is that he has set a standard to which Mr. Lewis could not hope to adhere.

"For the office of Secretary of Labor, Mr. Lewis has the principal qualification that he is ruining the coal-mining industry in the central competitive field. It is a proud achievement."

This is the time of year when each of the Cabinet officers undertakes to justify his work for the year. Annual reports

have been submitted to the President from all of the executive departments. Practically each one of these reports carries a note of optimism. No report is of more general interest to the public than that of the Treasury Department. Secretary Mellon in his report believes that "years of prosperous and healthy conditions such as succeeded the election of 1896 are ahead of us," but qualifies his assertion by calling upon Congress for tax legislation, saying:

"The attention of Congress should be directed principally to the excessive surtax rates and to the confiscatory estate tax rates. The gift tax is unworkable and unduly hampers the legitimate business. The publicity provision, in the revenue law, in my opinion, is a mistake of policy and will be detrimental to the revenue.

"I recommend that the maximum surtax rate be fixed between 15 percent and 25 percent, which with a normal tax of 6 percent, would make the maximum tax between 21 percent and 31 percent instead of 46 percent as at present.

"Taxation should not be used as a field for socialistic experiment, or as a club to punish success, but as a means of raising revenue to support the government. * * * It has been the belief of the Treasury and it is borne out by experience, that, if taxes are too high, the source of revenue diminishes and the tax becomes less and less productive. If taxes are reduced the source of taxation expands and the lower rate may be even more productive than the higher rate and the source of revenue assured for the future.

"The law now says to the man of large income: 'If you lose on your venture, you will pay 100 percent of the loss; if you win, the law will take 50 percent of your profit.' These are not the odds which encourage adventure or the production of income which will yield its revenue to the government. No man will continue to sow where he cannot reap.

"We have then the blighting effect of excessive rates, which compel avoidance, and destroy initiative, and by both means, diminish the returns from the upper brackets, from which the government has been taking a large part of its revenue."

Bearing out Secretary Mellon's idea that there are years of prosperity ahead of us and that times at present are particularly prosperous, it is interesting to note that the greatest freight traffic for any month in the history of the railroads was carried by them in October, 1924. In a report from the Car Loading Division of the Chamber of Commerce, it is shown that,

"Measured in net ton miles, the total was 43,109,743,000 net ton miles, exceeding by 424,835,000 net ton miles, or 1 percent, that for August, 1920, which had marked the previous high record for any one month.

"Compared with October last year, it was an increase of 900,072,000 net ton miles, or 2.1 percent.

"This record freight movement was handled by the railroads without transportation difficulty. While loading for revenue freight in October averaged more than 1,090,000 cars weekly, reaching a peak the week of October 25 when it amounted to 1,112,345 cars, the greatest number loaded during any one week in history, the railroads through the more expeditious handling of freight were able to move this enormous freight business without a car shortage. In fact, during the month there was a daily average of nearly 100,000 surplus freight cars in good repair which were not needed to meet transportation demands. At the same time, the railroads had approximately 5,000 serviceable locomotives in storage, it not being necessary to place them in service as the locomotives on hand were able to handle the volume of business.

"In the eastern district there was a decrease under October, 1923, of 1.2 percent in the amount of freight traffic handled, computed on the basis of net ton miles, but in the southern district there was an increase of 2.5 percent and in the western district an increase of 6.3 percent.

"For the first ten months in 1924, the volume of freight moved amounted to 356,389,671,000 net ton miles, a decrease of 7.7 percent under the corresponding period last year, decreases being shown in all districts. In the eastern district, the decrease amounted to 11.7 percent; in the southern district 6.1 percent and in the western district 2.3 percent."

For those who lack faith in our business institutions, the word of **Richard F. Grant**, president of the United States Chamber of Commerce, in a recent address, carried a sincere note of conviction that they should consider seriously. Mr. Grant said:

"The function of business is to provide the material necessities of mankind; it is doing this and more. Business today is rising to new heights; it has a conscience and a soul. Business today realizes that it must enter into the various community problems and it is helping to solve them. The hospitals, the research laboratories, the various other charities and scientific achievements are promoted and sponsored chiefly by business men. This is

the answer to the oft-repeated charge that business is sordid, is not on the level."

According to the *Daily Metal Market*, it is impossible to regard the situation in steel other than as indicating great coming prosperity in that industry, and, if we accept steel and iron conditions as an index to general business prospects, there is every reason for the confidence which prevails. They point out that "The total of the Steel Corporation's orders, as of November 30, has been brought up to 4,031,969 tons—the largest total reported by the company since last April, when demand began to decline and all business was affected by the election uncertainty. The steel Corporation's operations are close to 80 percent. A month ago they were at 60; and the flood of new business now being entered on the books is at a higher level of prices."

Dr. H. Foster Bain, Director of the Bureau of Mines, in his annual report to Congress, emphasized safety methods and dwelt at length upon rock dusting. Dr. Bain believes that the application of rock dust would prevent many accidents and says:

"Had the coal mine operators of the country in years past followed the principle of rock dusting the mines as a means of preventing the spread of explosions, many large mine disasters would not have occurred and hundreds of lives would have been saved.

"Notwithstanding that safety means are ready at hand, with small expense to mine owners, the death rate from gas and dust explosions is now as great as ever.

"In view of the large number of deaths from explosions during and since the year 1922, the practice of rock dusting should be adopted as soon as practicable in all bituminous mines in which dust constitutes a hazard.

"Most of the larger explosions were propagated through the mine workings by coal chiefly and, therefore, coal dust was responsible for the greater part of the loss of life. This extension of an explosion throughout a mine can be stopped even if all initial explosions are not prevented.

"Accidents in the coal mines of the United States, with their consequent train of deaths, injuries and tremendous property losses, continue at far too frequent rate despite the results of modern research which have demonstrated clearly the principal

causes and definite means of minimization of such accidents.

"Only one state, Utah, following a mine disaster that caused the loss of 171 lives, has adopted practical tested methods recommended by the bureau."

When the appropriation bill covering the Interior Department was before the House, Mr. Wingo, "the gentleman from North Carolina," sounded a note that should never be overlooked in making available appropriations for the conduct of the work of this important branch of the government. Mr. Wingo said:

"We fail to appreciate the men of science who, unknown to fame in this country, dig and dig in these governmental departments and bring about great improvements; improvements in the making of fertilizer, in safety appliances, in the oil industry, in the mining industry, and everything of the kind. The few paltry dollars which the taxpayers pay for these experiments bring many, many returns by way of health, happiness and prosperity of the American people. I would be willing to spend more money on experimentations and throw the results open to the public. You want private business to have the benefit of the knowledge of public experiment in regard to improved methods, of methods in regard to mine safety, methods which will decrease the cost of production and bring about a higher and better state of civilization in this country, which is a legitimate expenditure.

"In regard to improved methods, methods in regard to mine safety, methods which will decrease the cost of production and bring about a higher and better state of civilization in this

country, which is a legitimate expenditure, let us help the government to do something constructive and stop snooping around trying to restrict and hamstring everything that the people want to do."

The Secretary of War, the Honorable John W. Weeks, in a recent address before the National Rivers and Harbors Congress, discussed that important subject—the Inland Waterways Corporation—and its interesting projects on the Mississippi and Warrior Rivers. After explaining how the work has been done and what the object of this corporation is, Mr. Weeks said:

"Since it seems to be an established fact that waterway transportation will not come back of its own volition, and since the government has embarked upon this project, of demonstration that waterway transportation, in conjunction with rail and highway is feasible and economical, and in the public interest; then upon the success of this demonstration rests the policy to be pursued by the Congress as to whether or not any more money shall be spent making streams navigable. If this demonstration proves a success, if the conditions precedent to success are created, if the line proves a money maker, private capital will invest in that particular service and will have demonstrated on that particular river that our money spent in developing it as a transportation facility has not been wasted. We could then sell the line and place it in the hands of private operators and, with the money thus obtained, create conditions precedent to success on other streams.

"It would not require many demonstrations to establish most of the conditions precedent to success upon all other navigable rivers. At least there would have been formed a basis upon which private capital could embark upon other rivers in the rehabilitation of common water-rail carriers without the necessity of suffering the long periods of financial losses which would otherwise have been sustained by them, if, indeed, they would have attempted to create such conditions in the establishment of a successful line."

The National Industrial Conference Board adds its voice in the general belief of increased prosperity, pointing out that:

"The most significant indication of the upturn in industrial activity is the increase in hours of work, directly



traceable to increased orders. Especially in its relation to average nominal or full time week, the average week per wage earner indicates the extent to which part time operation is in effect. In the first nine months of 1924 the average nominal week of reporting plants remained practically unchanged, with an average of 50 hours. The average week per wage earner on the contrary steadily declined until July, when it reached 45.1 hours. A slight increase in August was followed in September by a gain that brought the figure to 46.4 hours. Importance of this gain may be realized from the fact that in covering over 700,000 wage earners of the board's survey, this gain of one hour is equal to 280 work years.

"Comparison of conditions for the same period last year emphasizes the recovery made between July and September, 1924. In September, 1923, with a nominal week of 49.7 hours and an average week per wage earner of 48 hours, there was an average of 3.4 percent lost time. By July, 1924, the average week per wage earner had dropped to 45.1 hours, although the average nominal week remained at 49.7 hours. This increased the average lost time to 9.2 percent of the nominal week. Improvement in August and September of this year closed the gap to 6.4 percent. This still represents a subnormal condition, but indicates that the trend is strongly upward.

"The trend of manufacturing activity from June, 1920, to September, 1924, is clearly indicated in the chart covering employment and hours of all wage earners in 23 basic industries. Following the steady decline in 1920 and 1921, it was not until late in 1922 that the curve of total hours worked crossed and rose above the total employment curve, indicating a high degree of activity at that time. This condition continued into 1923 until after June, when the effect of curtailment caused hours worked to fall below the employment line. In August of this year, the corner was turned and the index figures based on June, 1920, as 100 were in September, 72 for employment and 70 for hours worked."—(*Daily Metal Market*.)

The growing interest of employees in the business of their company is evidenced by the action of the employees of the **Bethlehem Steel Company** in their recent annual election. In a recent news release from this company, the following interesting item shows the growing interest of their employees:

"Votes of the employees of the Bethlehem Steel Corporation in the annual election, which has just been com-

pleted, of their representatives who will serve during the year 1925 to represent the employees in all dealings with the management, shows that 93 percent of all eligible employees exercised their voting privileges this year. This is an increase of 12 percent over last year when 83 percent of the employees voted.

"The elections were held in October, November and December in the seven steel plants and five ship yards and covered the major part of 70,000 employees of the subsidiary companies of the Bethlehem Steel Corporation.

"This is the seventh annual election here under Bethlehem's plan of employee representation and the second in which the employees of all of the steel and shipbuilding plants have taken part.

"Of the total of 304 representatives elected, 150 were re-elected from last year. About 95 percent of the employees elected as representatives are American citizens—all must have their first papers to be eligible; 41 percent are owners of their own homes.

"The average term of service of these representatives with the company is twelve years.

"The Bethlehem plan of employee representation provides for election by shops or department or representatives by and from among the employees, to meet and deal with the management for the discussion, regulation and adjustment of matters having to do with all the conditions under which the employees render service.

"All employees on the company's payroll for 60 days, who are 18 years of age or over, are qualified voters except those employees exercising supervisory service. The nominations and elections are conducted by the employees themselves by secret ballot."

The *American Metal Market* seems to believe that gold hoarding is a myth, and to prove their point they quote from a questionnaire recently sent out by the Finance Department of the United States Chamber of Commerce. In part they say:

"It would keep a hosiery mill busy for some time to supply socks to hold the hidden currency if some of the estimates—from \$1,000,000,000 to \$2,500,000,000—are anywhere near correct. The latter sum is approximately half the entire amount of money of all kinds in circulation, including the money held by all banks at home and abroad.

"But the bankers of the country seem to think that this vast hoard of hidden money is a myth. Of the 94 in the principal cities of the country

who replied to the question, only nine believe that there is any considerable amount of money hoarded in their localities. In nine other cities bankers make definite estimates of the amounts that might be hoarded—from \$100 to \$2,000,000. Seventy thought that the amounts hoarded were insignificant and four were of the opinion that there was no hoarding at all.

"All of this tends to disprove the theory that by raising the interest rates on postal savings deposits hundreds of millions can be enticed out of obscure hiding places by the Government through the scheme of raising the interest of postal savings deposits. There is no way of telling just how much of the money poured out into the circulating stream finds its way into these secreted nooks and crannies but the amount is probably little."

The Pennsylvania State School of Mines at State College, Pennsylvania, has been devoting considerable study to a course for the training of miners, mine foremen and other officials in the mining industry. Dean E. A. Holbrook of the college, in a recent editorial in *Mining and Metallurgy*, explains the necessity for the adoption of such a course by his school, saying:

"During the last twenty years in this country it has been increasingly common to stress the need for more study and training for miners, mine foremen and other officials in the mining industry. Attention many times has been called to the superior systems of training found in mining communities of European countries; especially to courses of study and official examinations in practical mining subjects designed for men who must fill the positions between the miner and those to which the college trained engineer aspires.

"In coal mining in practically all the coal mining states, we have rightly copied the European practice of requiring mine officials to pass formal state examinations on the elements of mining science and practice before entrusting to their care men underground.

"To operate the coal mines of Pennsylvania alone requires roughly 8,000 firebosses and mine foremen who must have passed a formal examination set by the State Mining Department. The majority of these men having left school before the high school grades are unable, without extraordinary effort, to master the principles of mine law, mine gases, mine ventilation, mine safety, electricity, drainage and methods of working on which these examinations are rightly based. It is true that (Continued on page 36)

NEWS OF THE MINING FIELD

A Resume Of The Activities Of The Mining Industry And Items Of Interest In The Field

Northwest Mining Convention

The twenty-ninth session of the Northwest Mining Association was held in Spokane, Wash., the week of December 1. Delegations of prospectors and mine operators from British Columbia, Idaho, Montana, Oregon and Washington were present. The addresses of welcome on the opening day all carried a spirit of optimism and predicted the return of the mining industry to its pre-war position. Attractive displays of ore from many mining camps proved an interesting feature of the convention.

"Blue-sky" legislation occupied an important place in the discussions. A paper delivered by Dean Milnor Roberts, of the School of Mines of the University of Washington, on "Legitimate Mining Promotion," was the forerunner of a warm debate. His paper advocated that independent mining reports by competent mining engineers should accompany all prospectuses of properties whose securities are offered to the public. Later, F. A. Ross vigorously objected to authority being vested in one man or in a commission to pass on promotions. He declared that no mining man would object to reasonable regulation by law, but always would oppose regulation by man.

Conner Malott, a prominent banker of Spokane, advocated in place of the usual law a fraud law similar to that in effect in New York State.

Among the important addresses were papers by Dean Francis A. Thompson, of the School of Mines of the University of Idaho and secretary of the Idaho Bureau of Mines, on the mineral resources of that state; Lloyd L. Root, state mineralogist of California, on the mineral resources of California; and A. G. Langley, resident engineer of the Columbia Mineral District of British Columbia, on mining in British Columbia.

Resolutions were passed opposing "blue-sky" legislation where a state official or commission was empowered to say whether or not a mining company could do business, but advocating a requirement of publicity and laws designed to eliminate fraud; commending the Gold and Silver Commission of the Senate for its efforts to compel full compliance with the Pittman Act, and urging the use of silver coinage in place of bills in smaller transactions; appointing a committee by Congress to change the mining law to facilitate patenting of land with no mineral outcrop, although admitted valuable for mineral.

More than 500 delegates attended and their enthusiasm was marked. Frank C.

Bailey, secretary of the Northwest Mining Association, was largely responsible for the success of the meeting.

Ford In Coeur d'Alene

Development and exploration of mining properties in central Idaho which have not been deemed feasible because of transportation difficulties is being undertaken separately by two well-known corporations, the Ford Motor Company and the General Motors Company.

The bond and lease on the Red Bird mines, situated 90 miles from Mackay, and adjoining properties have been purchased by the Ford Company, and the Livingston properties, a few miles from the Red Bird, are being explored by General Motors. The latter company is installing hydroelectric power, tramways and a concentrator, and is constructing 60 miles of roadway. Approximately \$400,000 has already been spent.

The properties taken over by the Ford Company, in the Bay Horse district, have in past years been highly productive of lead-silver and gold-copper ores. The key to the entire proposition is probably the Red Bird group, which has been developed through nearly 4 miles of workings. There are four tunnels on the property, ranging from 300 to 1,600 feet in length, and a total depth of 900 feet has been reached.

Jacksonville Agreement

Coal mine operators in central Pennsylvania recently sought to improve conditions in their industry and at the same time insure employment to the miners. They suggested to officials of District 2, United Mine Workers, a readjustment of the Jacksonville wage agreement. In refusing readjustment the union officials stated that only by checking the development of new coal fields and the opening of new mines until the demand and the supply counterbalance can the depressed conditions be remedied.

Anthracite Coal Tax

The Supreme Court of the United States has reaffirmed the constitutionality of the Pennsylvania anthracite coal tax law of May 11, 1921. The validity of the tax was assailed by the Cranberry Creek Coal Company, the Philadelphia and Reading Coal and Iron Company, the Alliance Coal Mining Company, and the Lehigh Coal and Navigation Company on the ground that the assessments of

the tax were unlawful because they were made after the coal had been sold.

Regarding this tax, the United States Coal Commission in September, 1923, commented as follows: "This tax is confined to anthracite, the mining of which is practically exclusive to that state, and the monopolistic feature of which is recognized by the policy of that state in taxing anthracite only, while its bituminous coal, in competition with the great bituminous fields of the country, remains untaxed."

Miners' Courses

Pennsylvania State College has prepared a set of lessons under the direction of N. E. Hubbel, associate professor of industrial education, for use by coal miners attending evening classes. The aim of the lessons is to prepare ordinary miners to take state examinations for official positions in mine work. Separate sets are to be used in the bituminous and anthracite fields.

One thousand six hundred miners were enrolled last year, and this year the number will exceed 2,000.

"High-Grading"

Plans for additional legislation and regulation to prevent the sale of stolen ore, a practice commonly known as "high-grading," are under way in California. Through a special committee, the California Metal and Mineral Producers' Association is cooperating with Mint officials along this line. A detailed bullion deposit statement has been adopted by the Mint in accordance with suggestions of the association's committee. Legislation providing for the licensing of ore and bullion buyers under provisions similar to those in effect in Colorado is advocated by the California association.

Oil Production

Before the American Petroleum Marketers' Association meeting in Cleveland recently, Henry L. Doherty, a prominent oil and public utilities operator, stressed the expediency of legislation, preferably by state legislatures, to remedy the present condition of the oil industry—overproduction, resulting in needless waste.

Data On Nonferrous Reserves Lacking

Consuming industries are finding that data on nonferrous ore resources the world over are of value to them.

While government bureaus have com-

piled figures along these lines, it is admitted that the statistics are not accurate. Industrial consumers declare that world mineral surveys, giving data on resources of lead, tin, copper and zinc, while directly valuable to the consumers, would benefit the public in general enough to warrant the expenditures necessary.

Such surveys, it is pointed out, cannot very well be undertaken by private industry and should come under the Federal Government.

Coal Mining Institute Meets

The Coal Mining Institute of America held its annual meeting in Pittsburgh December 3, 4 and 5.

Among the interesting papers read and discussed were:

"Recent Electrical Progress in Coal Mining," by Graham Bright, consulting engineer, of Pittsburgh.

"Mine Accidents and Their Prevention," by Alexander McCanch, state mine inspector.

"Health Hazards in Coal Mining," by Dr. R. R. Sayers, chief surgeon, United States Bureau of Mines, Washington, D. C.

"Underground Belt Transportation of Coal," by Thomas C. Dawson, chief engineer, H. C. Frick Coke Co.

Following this last address a motion picture taken in the Frick mines was presented, showing the complete operation of the system used in the Colonial mines of that company.

A question box session proved the basis for an interesting discussion of important problems of coal mining. The following questions were submitted:

Why does the law minimize the capacity of motors and transformers?

Is a voltage of 500 reasonably safe for all working conditions in 3½ feet of coal?

Are the sanitary conditions inside the coal mines much improved over 30 years ago? If so, what are the main reasons?

Are the sanitary conditions in coal mining towns greatly improved over 30 years ago? In what respects?

Give six principal methods for improving the ventilation in an old coal mine.

Is underground mechanical loading a success?

If a shot firer has two or three holes to fire in the Pittsburgh draw-slate, isn't it safer to allow these to be fired simultaneously, rather than one at a time?

Is a high-grade limestone the best material for rock dusting in coal mines?

What is the most effective means

to minimize the present appalling rate of fatalities due to "falls"?

What percentage of methane is allowable in the main return air?

The meeting was featured by three inspection trips on December 5 to mining properties around Pittsburgh. One excursion was to the Indianola mines, where rock-dusting methods were inspected. Another party visited the H. C. Frick properties at Brownsville and looked over the company's belt transportation and loading system. The third trip was to the East Pittsburgh works of the Westinghouse Electric and Manufacturing Company, where a tour of the works was followed by a luncheon.

The following officers were elected for the coming year: Nicholas Evans, of Johnstown, president; J. M. Armstrong, of Pittsburgh, first vice-president; A. C. Fieldner, of Pittsburgh, second vice-president; W. C. Hood, of Uniontown, third vice-president; and H. D. Mason, of Ebensburg, secretary and treasurer.

CURRENT OIL SHALE NOTES

THE passage of the bill appropriating \$90,000 for an experimental oil shale plant on Naval Reserve No. 2, in Colorado, is now virtually assured. Credit is due Senator Lawrence C. Phipps, of Colorado, for his persistent work in behalf of the oil shale industry. In addition to Naval Oil Shale Reserve No. 1, in Utah, recently increased by 4,800 acres, and No. 2, in Colorado, a third has been added in Colorado adjacent to No. 2. The two reserves in Colorado are estimated to yield two and a half million barrels of crude oil.

Five hundred tons of oil shale recently sent from Manchuria to Scotland for test showed a yield of 7 percent of crude oil. This result checks closely with the tests made in Manchuria. The Japanese Government is making steady progress in developing its oil shale resources in Manchuria. Extensive operations on a commercial basis will soon be undertaken.

The work of R. M. Catlin at Elko, Nevada, is being recognized the country over as that of a persistent and successful pioneer. Beginning in 1917 he has built and dismantled four commercial sized retorts all virtually financed by Mr. Catlin and his personal friends. His present plan of 100 tons daily throughput is the pioneer plant of its kind in the United States; that is, the first commercial plant to run continuously and to put its products of gasoline, lubricating oils, and waxes, on the market in competition with similar products from well oil.

The resurvey of the oil shale district north of DeBeque, Colorado, has been going on during the past summer but has

been discontinued for the winter. It is expected that the work on eight townships will be completed early in 1925 and the work on a new group of townships started.

Oil shale in Tasmania and Australia is receiving much attention. The Premier of Tasmania has called a conference of oil shale men to consider the best method of exploiting the deposits and determining the most efficient retort. The Australian Shale Oil, Ltd., has 3,500 acres of oil shale land at Murrundi which yields 60 gallons of oil to the ton. The Bronder retort of New York is now being tested there.

The torbanite deposits in South Africa are estimated to cover at least 40 square miles. In what is known as the composite seam alone there can be produced not less than 25 million tons of crude oil. This seam is recognized as one of the richest oil producing deposits in the world. Dr. E. Neufeld, of Germany, found this torbanite to yield 97.3 gallons to the ton. E. H. Cunningham-Craig, in his report on this district, said "Considering the high prices of petrol and oil in South Africa and the great demand for these products, it is obvious that the mining and retorting of a torbanite, even in thin seams, will be a much more profitable business than mining coal."

OIL SHALE CONFERENCE

The means for future production of oil from government reserves of coal and oil shale was the subject of a conference held at the Interior Department recently by technologists of the Navy, the Bureau of Mines, and the Geological Survey. A research program to aid commercial development of processes by which oil may be obtained from oil shales, lignite and other coal is being planned by the Bureau of Mines. The Navy was represented in the conference by Rear Admiral H. H. Rousseau, Commander N. H. Wright and Lieutenant Commander W. H. Osgood. The Geological Survey was represented by Dr. David White; W. T. Thom, Jr., fuels geologist; and W. H. Bradley, oil geologist. O. P. Hood, chief mechanical engineer in charge of the Fuels Division of the Bureau of Mines, presided.

A report was made upon recent research in foreign countries by A. C. Fieldner, superintendent of the Pittsburgh experiment station of the Bureau of Mines, who has just returned from a trip of inspection through European laboratories and carbonization plants. Reports were also rendered upon recent research in the fuels and petroleum laboratories of the Bureau of Mines.

ELECTRIC POWER MINING

(Continued from page 5)

between government and business caused its fall. And amongst the Greeks of antiquity there was political freedom and economic freedom, protection from the aggression of government against the individual. Thus we may go on down through the ages. But finally, the protest against too much government and too much taxation found its great expression in the formation of the American Republic, and in its compact of government which we call our Constitution.

Under this we exist. We call this our Constitution, our fundamental law, and we make the people the sovereign. But, though the people themselves are the sovereign our compact of government restrains them from aggression against the individual. And so, out of that compact of government grew our American institutions, which vouchsafe to the American citizen political, civil and religious liberty, and economic freedom.

We face today, with the beating of tomtoms, the like of which has never been heard, an admonition that we forsake the development of the individual and turn to government to make men lofty, honest and just. The American ideal is that government should afford opportunity to the citizen and leave it to him, with the consciousness of the general welfare, to work out his destiny and develop himself. And when we have this proposal, we must recognize that it is a trend toward collectivism; that it is a trend which, if unchecked, will utterly destroy, not merely the Constitution, but the fundamental institutions which have made this country great and strong, and its people prosperous.

We must hold fast to the principles that move our forefathers. Too much government and too much taxation is ruinous. There has never been a civilization in the world where too much government did not lead to too much taxation and the diversion of capital with a consequent lowering of the standard of living and failure to produce the things necessary to support the economic structure. But what we want in this country is government to remain in that sphere that our fathers fixed for it, and to retain our fundamental institutions.

We want government to be a guide of business, helping and guiding business to be, not the slave of government, but the servant of the commonwealth and of the general good. Government should continue to be the philosopher in the sense it reasons out and seeks and discovers and interprets ways and means to help business. And I insist that we cannot hamstring a business, we cannot hog-tie business by undue government interference, or by government monopolies or government competition, or by the undue

exactions of government for taxation, and hope to hold fast to the high standard of living and comfort which has characterized the development of our country.

WATER POWER

THE number of acres of public land reserved as valuable for water power purposes and held subject to disposal under the Federal Water Power Commission totaled 4,762,844 acres at the end of the last fiscal year.

These lands are located along rivers and streams in twenty states and territories. The state having the largest areas of public land reserved for the creation of water power is Arizona with 1,049,969 acres. The second state on the list is California with 976,095 acres. Utah is third, the number of acres withdrawn being 468,678 acres. A list of states and territories with the acreage of public land reserved for this water power purpose follows:

Alabama, 749 acres; Alaska, 167,988 acres; Arizona, 1,049,969 acres; Arkansas, 28,551 acres; California, 976,095 acres; Colorado, 298,376 acres; Florida, 486 acres; Idaho, 266,659 acres; Michigan, 1,240 acres; Minnesota, 12,357 acres; Montana, 214,830 acres; Nebraska, 761 acres; Nevada, 300,270 acres; New Mexico, 207,548 acres; Oregon, 467,237 acres; South Dakota, 12 acres; Utah, 468,678 acres; Washington, 151,181 acres; Wisconsin, 870 acres; Wyoming, 148,987 acres.

PUBLIC LANDS

AN area of 23,000 acres in Colorado was segregated as Naval Oil Shale Reserve No. 3, and nearly 5,000 acres in Utah was added to Naval Oil Shale Reserve No. 2, during November, 1924.

In its report for the month the Geological Survey shows the withdrawal of 133,403 acres of public lands for water power purposes in Arizona and New Mexico, the reservation of 200 acres by application in Oregon, and the classification of 718 acres of public land in California and Utah as water power sites.

About 20,000 acres of land in Arizona, New Mexico, and Utah were included in formal orders designating the land as nonirrigable under the enlarged-homestead acts and to that extent subject to entry as homesteads of 320 acres or less. A little more than 100,000 acres in Colorado, Montana, Nebraska, and North Dakota were classified under the stock-raising homestead law and designated for entry in tracts of 406 acres or less. Much of the acreage involved in these designations is included in original entries or in applications under the enlarged and stock-raising homestead acts which confer a preference right.

During November the Geological Sur-

vey reported upon the structural relations of lands embraced in 453 applications for prospecting permits under the oil sections of the leasing act of February 25, 1920, thus bringing the number of such reports rendered since the passage of the act to 27,401. Over 400 such applications were pending in the Survey November 30, 1924. During the month reports were rendered on 30 applications for coal-prospecting permits and 19 applications for coal leases, making a total of 1,469 applications for coal permits and 633 applications for coal leases reported on since the passage of the act.

LAND GRANTS

THE government has given 202,387,493 acres of its public domain to states of the union under various grants, according to the latest tabulation made at the Interior Department.

The largest amount of public land has been presented to the states for educational purposes, the total acreage being 117,164,290 acres. To establish common schools in the states, the government has given them 98,519,946 acres of public land. For establishing agricultural and mechanical colleges in the states, land grants totaling 10,927,682 acres have been made. Grants for other educational purposes amounted to 7,716,662 acres.

Other grants included 9,500,000 acres for internal improvements in the states, 64,719,003 acres in swamp lands, and miscellaneous grants of a total of 11,004,199 acres.

Practically every state has been the beneficiary of land grants from the government running into millions of acres with the exception of the original thirteen colonies.

The very many friends of L. J. Hewes, for eight years manager of the district office of the Traylor Eng. & Mfg. Co., 1414 Fisher Building, Chicago, Ill., will regret to learn that he has tendered his resignation, effective January 1, 1925.

Mr. Hewes for nearly 40 years has been actively and prominently identified with the design and sale of crushing and mining machinery and has won an unusual measure of success in this line of endeavor.

He has ever been an earnest advocate of the principle that a business man should take his leisure at an age when he still has the physical capacity to keenly enjoy life, and he feels that his strenuous business career now entitles him to devote his time to recreation.

Mr. Benard Haislip, for a number of years assistant to Mr. Hewes, has been appointed district manager to succeed him.

THE NATION'S VIEWPOINT

(Continued from page 32)

there are elementary books and bulletins on these subjects, but gathered together, the assortment is so bulky and contains so much collateral material, that our young practical man has too often despaired of the task.

"It marks a new step, therefore, that the Pennsylvania State College Industrial Department and the School of Mines has finished after three years of work the preparation of complete elementary texts in anthracite and in bituminous coal mining. The anthracite and the bituminous sets each contain 131 separate lessons and are designed especially for the practical man studying in the evening night schools in the coal mining districts.

"In addition there are 70 lessons in mine mechanics and 70 lessons in mine electricity ready for distribution. The material has been reviewed and approved by the State Department of Public Instruction and the State Department of Mines.

"What a foundation of training these lessons hold for the future generation of practical coal mining men and officials!"

COORDINATION OF MINING STANDARDS

(Continued from page 25)

be the same for a great many different industries. If these industries can agree to standardize together, each one benefits by a large saving, whereas very little saving will result if each industry standardizes for itself, but each upon a basis different from that of all the others. You all recognize what value the American Engineering Standards Committee has been in this phase of the standardization work.

The third class, standardization by exact procedure, is the one in which the mining industry can make great independent progress. Thus "Rules and Regulations for Installing Electrical Equipment Underground," safety practices of various kinds, general mining laws and regulations, ventilation procedure, and a host of others, come in this class. In some places the work will merge into our first class, that of best methods, but in general any work done here results in exact procedure. From many of the projects something may be crystallized which should meet the agreement of all and be of probable life to justify making it an American standard. Other parts will be of benefit as a step to aid the individual mining companies and on which, from material experience, new and better procedures can be built.

Considerable work in this class which calls for continual observation and experiment has been carried out by the Federal Bureau of Mines, and their function must be to continue to do these helpful things in research and experimenting which cannot so well be done by the individual organization.

The American Mining Congress by its continued attention, interest and effort in all three fields of standardization has accomplished much, and by reason of its wide membership and interest, may continue this far-reaching work. Part of the product will result in better practice, part in cheaper and better materials and apparatus and part in exact rules that will become the common possession of the mining industry. Not all needs be an American standard in order to be useful to the mining industry.

The Mining Correlating Committee of the American Engineering Standards Committee should be of value in those standards of the second and third classes which the American Mining Congress and other cooperating bodies believe are finished enough so that nation-wide agreement may be had for their general adoption.

LEGISLATIVE REVIEW

(Continued from page 27)

two and one-half times the tonnage of fixed nitrogen.

An amendment by Senator Copeland (Dem., N. Y.) would limit profits on sale of surplus power to 8 percent.

The Senate defeated an amendment by Senator McNary (Rep., Ore.) subjecting the lease to the Federal Water Power Act.

Senator Wadsworth (Rep., N. Y.) introduced an amendment for operation of the plant by a commission, on which would be represented persons experienced in chemistry and power development.

Senator Jones (Rep., Wash.) proposed an amendment for the sale of surplus power for industrial and public utility uses under regulations of the Federal Power Commission.

H. J. Res. 298. Introduced by Mr. Wright (Dem., Ga.). Referred to the Military Committee. This bill proposes to create a commission of two Senators and three Representatives to negotiate for lease of the project, reporting to Congress in 30 days.

H. Con. Res. 31. Introduced by Mr. Kearns (Rep., Ohio). Referred to the Rules Committee. This is similar to the foregoing.

H. R. 10350. Introduced (by request) by Mr. Reed (Rep., W. Va.). This pro-

poses to lease the property to a Federal Power and Fuel Corporation which would operate power or coal reduction plants and distribute electric power and fuel.

H. R. 10357. Introduced by Mr. Reece (Rep., Tenn.). Referred to the Military Committee. This is similar to the Underwood bill.

H. R. 10529. Introduced by Mr. Hill (Rep., Md.). Referred to the Military Committee. This bill carries out recommendations of the War Department to sell military property not needed, including the Waco Quarry in Alabama.

Colorado River

H. R. 10723. Introduced by Mr. Fredricks (Rep., Calif.). Referred to the Committee on Flood Control. This bill proposes to appropriate \$30,000,000 to construct a dam in the Colorado River at Boulder Canyon to regulate the flow of the river and prevent floods in California and Arizona, and for irrigation and power development.

COPPER LEACHING IN PLACE

AN elaborate study of the reactions involved in leaching copper ores in place has been completed by Department of the Interior engineers at the Intermountain Experiment Station of the Bureau of Mines, Salt Lake City, Utah. The object of this study was to obtain data on the fundamental conditions in the leaching process. Since the Bureau of Mines published the first description of leaching developments at the Ohio Copper Company's mine in Utah, where a large body of low-grade ore is being leached without mining, many requests have been received as to the conditions necessary to make this form of treatment successful. The experiments show how, by starting with a simple water solution, and leaching for a considerable period of time, the copper minerals go slowly into solution. Conditions under which large losses of copper might result were determined as well as methods of controlling the solution under various conditions. The Bureau's tests show that practically all the water-soluble copper leaches out in a relatively short time, whereas the alteration of the copper oxides to a water-soluble form requires a long period, and the action on the sulphide minerals is very slow.

The biennial census of manufactures, 1923, shows that the establishments engaged primarily in the production of minerals and earths, ground or otherwise treated, reported products valued at \$34,798,630, an increase of 33 percent as compared with \$26,173,722 in 1921, the last preceding census year.

COPPER, SMELTING AND REFINING

DATA collected at the biennial census of manufactures, 1923, shows the establishments engaged primarily in the smelting and refining of copper reported products valued at \$567,984,807, an increase of 141.8 percent as compared with 1921, the last preceding census year.

Of the 30 establishments reporting for 1923, 19 did smelting only, 4 refining only, and 7 both smelting and refining.

These establishments were located as follows: 9 in Arizona, 4 in New Jersey, 3 in Montana, and the remaining 14 in 11 other states.

The statistics for 1923 and 1921 are summarized in the following statement. The figures for 1923 are preliminary and subject to such correction as may be found necessary upon further examination of the returns.

	1923	1921	Pct. of increase*
Number of establishments	30	28	....
Wage earners (average number)†..	20,735	8,293	150.0
Maximum month	(Oct.) 22,055	(Jan.) 12,476	....
Minimum month	(Feb.) 19,029	(June) 6,602	....
Percent of maximum	86.3	52.9	....
Wages	\$31,319,544	\$11,199,279	179.7
Cost of materials (including fuel and containers)	\$471,317,150	\$205,903,896	128.9
Products, total value	\$567,984,807	\$234,895,245	141.8
Value added by manufacture‡.....	\$96,667,657	\$28,991,349	233.4
Horsepower	432,886	\$	....
Coal consumed (tons of 2,000 lbs.)..	1,116,183	\$	....

*Percent not computed where base is less than 100.

†Not including salaried officers and employees. Statistics for this class will be given in final report.

‡Value of products less cost of materials.

§Not reported.

LEAD, SMELTING AND REFINING

ACCORDING to the data collected at the biennial census of manufactures, 1923, the establishments engaged primarily in the smelting and refining of lead reported products valued at \$227,735,149, an increase of 51.2 percent as compared with 1921, the last preceding census year.

Of the 20 establishments reporting for 1923, 13 did smelting only, 3 refining only, and 4 both smelting and refining. These establishments were located in California, Colorado, Idaho, Illinois, Indiana, Kansas, Missouri, Montana, Nebraska, Oklahoma, Pennsylvania, Texas, and Utah. In 1921 the industry was represented by 23 establishments, the decrease to 20 in 1923 being the net result of the loss of 4 establishments

which were included for 1921 and the addition of 1 new establishment. Of the 4 establishments lost to the industry, 3 had been engaged primarily in the smelting and refining of lead in 1921 but reported other lines of industrial activity—the manufacture of chemicals and the smelting and refining of zinc—for 1923, and were therefore transferred to the appropriate industries, and 1 discontinued operations prior to the beginning of 1923.

The statistics for 1923 and 1921 are summarized in the following statement. The figures for 1923 are preliminary and subject to such correction as may be found necessary upon further examination of the returns.

	1923	1921	Pct. of increase*
Number of establishments	20	23	....
Wage earners (average number)†..	6,194	4,509	37.4
Maximum month	(May) 6,564	(Jan.) 5,710	....
Minimum month	(Feb.) 5,946	(July) 3,838	....
Percent of maximum	90.6	67.2	....
Wages	\$8,767,924	\$5,957,961	47.2
Cost of materials (including fuel and containers)	\$206,029,016	\$134,061,121	53.7
Products, total value	\$227,735,149	\$150,593,779	51.2
Value added by manufacture‡.....	\$21,706,133	\$16,532,658	31.3
Horsepower	42,377	\$	....
Coal consumed (tons of 2,000 lbs.)..	211,301	\$	....

*Percent not computed where base is less than 100.

†Not including salaried officers and employees. Statistics for this class will be given in final report.

‡Value of products less cost of materials.

§Not reported.

REFRACTORIES FOR THE METALLURGY OF ZINC

A STUDY of the properties of the refractory materials at present used by zinc smelters in the United States for the manufacture of zinc retorts has been undertaken by the Interior Department in cooperation with the Missouri School of Mines and Metallurgy. The experimental work is being performed at the Mississippi Valley Experiment Station of the Bureau of Mines at Rolla, Mo. This study is to serve as a basis for an investigation which will have as its object the improvement of the quality of zinc retorts. The samples upon which the tests are to be made are being collected in the course of visits to various plants in connection with a survey of fuels and refractories problems in zinc smelting, also being conducted by the Bureau of Mines.

WAR MINERALS CLAIMS

THE number of war minerals relief claims passed on and settled during the year ending November 30, 1924, was 240, according to a report submitted to Congress by Secretary of the Interior Work.

The amount asked in these claims was \$3,905,825, while the amount awarded was \$457,953. Cost of annual administration of war minerals relief, which was transferred over a year ago from a commission to the solicitor's office of the department, was \$33,932 as compared with \$2,003 for the previous year.

According to the report, the claims still to be adjusted number twenty-seven and the amount asked is \$1,797,345. There is a possibility, however, that some of the claims already settled may be revived through motions for rehearings. The balance of the appropriation on November 30, 1924, was \$1,275,649.

F. R. Wadleigh, formerly U. S. Fuel Distributor and Chief, Coal Division of the Department of Commerce, has assumed the active management of the Superfuel Corporation of New York of which Guy M. Standifer is president.

The Superfuel Corporation is producing a fuel which is an amalgamation, under a patented process of coal and crude petroleum, and has an authorized capital of 200,000 shares—no par value capital stock.

This company is also acquiring a controlling interest in the Trent Process Corporation and is now enlarging its Newark plant. It is estimated that this plant will produce 1,000 tons per day of "superfuel" in 1925.

MANUFACTURERS DIVISION MEETS

Philadelphia Meeting Considers Plan For The 1925 Exposition Of Coal Mining Equipment And Machinery

THE Board of Governors of the Manufacturers' Division of the American Mining Congress met in Philadelphia Friday, December 12, to consider and discuss arrangements for the National Exposition of Coal Mining Equipment and Machinery, to be held in the late spring of 1925.

The reports presented at this meeting indicated a very widespread interest, both among the coal operators and the manufacturers and dealers of mine supplies and equipment in the plans for the forthcoming exposition. From the expressions in Philadelphia it seemed evident that when final arrangements have been completed and a decision made as to the location and time of the meeting that there will be a more general interest than ever before and, in all probability, the 1925 Exposition of Mining Equipment and Machinery will be the largest and most successful which has ever been staged under the auspices of the American Mining Congress.

In view of the success of the meeting in Cincinnati in May, 1924, which was held simultaneously with the annual convention of the National Coal Association, the Board of Governors and other members of the Manufacturers' Division expressed their desire to cooperate as far as possible in working out arrangements whereby the 1925 meeting would have the full endorsement of both the American Mining Congress and the National Coal Association. Both S. Pemberton Hutchinson, president, and Harry L. Gandy, executive secretary of the National Coal Association, were present at the Philadelphia meeting and expressed their readiness to cooperate in every possible way to work out arrangements which will be entirely satisfactory and will make possible a combined meeting similar to the one a year ago, but stated that it would be impossible for any final decision to be made as to the annual convention of the National Coal Association until the meeting of the Board of Directors of that organization early in January, 1925.

The majority of the members of the Manufacturers' Division expressed themselves as in favor of returning to Cincinnati, if similar arrangements to those of a year ago could be worked out, but naturally they were anxious to work out arrangements for a combined meeting and, therefore, a special committee was appointed to keep in contact with the National Coal Association in regard to the final decision as to the annual convention of that organization and report back to the annual meeting of the members of the Manufacturers' Division,

which will be held in Washington, D. C., on Tuesday, January 27.

Final announcement relative to the 1925 Exposition of Coal Mining Equipment and Machinery will be made the latter part of January, 1925. Every indication points to an unusually large and representative display of mine equipment. Many manufacturers who did not participate in the Cincinnati exposition are anxious to make use of the opportunity this year and practically all of last year's exhibitors have indicated their desire to join in this meeting again.

Irrespective of whether final decision may be made it is certain that the Exposition of Coal Mining Equipment and Machinery will be located in a central point and will furnish a real opportunity for a practical discussion of operating problems and of inspection of the latest types of cost-reducing and labor-saving machinery.

NEW EQUIPMENT CATALOGS

The Hardinge Mill which is generally used for pulverizing limestone and similar materials for dusting coal mines is described in detail by the Hardinge Conical Mill Co., in Catalog No. 13, and Bulletin No. 17, copies of which may be obtained by addressing the New York office, 120 Broadway.

Two new catalogs have just been issued by the W. A. Jones Foundry & Machine Co. No. 31, covers shaft hangers, pillow blocks, couplings, collars, belt tighteners, mule stands, bench legs, etc.; all items are well illustrated, listed, dimensioned, tabulated, etc. The very latest data on a completely rounded out line of quality transmission appliances. No. 32 covers a full line of sprocket wheels and chain belting, as well as chain tighteners, elevator boots, buckets, bolts, hand wheels, etc., illustrations, listing prices and complete specifications on all items shown.

The Poole Engineering & Machine Company, Baltimore, Md., has recently brought out two new types of reduction gears, known as their type H and type K.

The type H reduction gear or speed transformer consists of a double helical or herringbone gear made of special analysis open-hearth steel forging and a herringbone pinion cut integral with high-speed shaft made of chrome vanadium steel. Both gear members are heat treated to proper hardness to minimize wear. Gear members are accurately ground and carefully tested for static balance before being assembled in gear casing.

The type K reduction gear consists of double helical or herringbone forged steel pinion integral with shaft and a cast steel double helical spur gear. Both gear and pinion have cut stub teeth. The gear and pinion shafts are mounted in substantial babbitted bearings of the ring oiling type and the gear and pinion are lubricated by the splash system; the gear and pinion running in an oil-tight oil-filled case.

LINK-BELT PUTS OUT NEW MALLEABLE IRON SAFETY COLLAR

IT is estimated that 10 percent of the power generated in the average industrial plant is wasted between the generator and the consuming machine. Attention to this loss of power has given rise to changes in power transmission equipment and the development of more efficient mechanical means.

One of the most recent developments along this line comes from the Link-Belt Company of Indianapolis. This new Safety Collar is intended to maintain the proper alignment of such equipment as pulleys, shaft bearings, hangers, etc.

Great strength, toughness, durability, and light weight have all been incorporated in this new Malleable Iron Safety Collar, in addition to which, a new design which permits the collar to be split in two pieces, thus affording ready and economical installation or adjustment. This type of collar, however, is made also in the solid ring type, both types being accurately machine finished, assuring a tight fit.

Exhaustive tests made with the Link-Belt Safety Collar have proven it to be impervious to shocks and strains encountered in heavy duty service. The material of which it is made possesses unusual wear and rust resisting qualities. This extends its sphere of usefulness to installations where the atmospheric conditions contribute to rust or excessive abrasiveness. The set screw, by which the collar is firmly affixed to the shaft, is flange protected.

As with the recently perfected "Kex-top" grease cup, the Link-Belt Malleable Iron Safety Collar will be marketed through dealers located throughout the country, thereby assuring prompt service.

The Osgood Company announces the appointment of Mr. C. J. Thompson as district sales manager in charge of the New York district with offices at 50 Church street, New York City, effective December 1.

Mr. Thompson has had wide experience in the excavating machinery and contracting field, and is ably qualified to look after the interests of the many friends and patrons of the Osgood Company.

Last year 3 new plants,
16 new warehouses, and a
carload of new cylinders
every other working day
were added to our facil-
ities & This is the best
evidence of the economy,
convenience and steadily
growing demand for

Prest-O-Lite

DISSOLVED ACETYLENE

THE PREST-O-LITE COMPANY, INC.

Oxy-Acetylene Division

General Offices: Carbide & Carbon Bldg., 30 East 42d St., New York

In Canada: Prest-O-Lite Co. of Canada, Limited, Toronto

31 Plants—55 Warehouses—21 District Sales Offices



BUYER'S DIRECTORY

ACETYLENE, Dissolved (Or in Cylinders)

Prest-O-Lite Co., Inc.,
30 E. 42nd St., N. Y. C.

ACETYLENE GAS

Prest-O-Lite Co., 30 East 42nd St.,
New York City.

ACETYLENE GENERATING APPARATUS

Oxweld Acetylene Co., 30 E. 42nd St.,
New York City.

ACID, SULPHURIC

Irrington Smelting & Refining Works,
Irrington, N. J.

AERIAL TRAMWAYS

American Steel & Wire Co., Chicago and
New York.

AIR COMPRESSORS

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Ingersoll-Rand Co., 11 Broadway,
New York City.

AMALGAMATING BARRELS

Traylor Engineering & Mfg. Co.,
Allentown, Pa.

APPLIANCES, ENGINEERING

The Lunkenheimer Co., Cincinnati,
Ohio.

AUTOMATIC CAGERS

Mining Safety Device Co.,
Bowerston, Ohio.

AUTOMATIC CAGE STOPS

Mining Safety Device Co.,
Bowerston, Ohio.

AUTOMATIC CAR CAGES

Connellsville Mfg. & Mine Supply Co.,
Connellsville, Pa.

AUTOMATIC FEEDERS

Mining Safety Device Co.,
Bowerston, Ohio.

AUTOMATIC FEEDERS, GRAVITY

G. M. Johnson Mfg. Co., Jeannette,
Pa.

AUTOMATIC (Mine Doors, Truck and Electric Switches)

American Mine Door Co., Canton,
Ohio.

AUTOMATIC SWITCH THROWERS

G. M. Johnson Mfg. Co., Jeannette,
Pa.

AUTOMATIC WEIGHING MACHINES

Streeter-Ames Weighing & Recording Co.,
Chicago, Ill.

BATTERIES (Storage, Gas Welding, Cutting, Dissolved Acetylene)

Prest-O-Lite Co., 30 East 42nd St.,
New York City.

BEARINGS (Roller)

Hyatt Roller Bearing Co., Harrison,
N. J.

BELTING (Conveyor, Elevator, Transmission)

Jeffrey Mfg. Co., 958 N. Fourth St.,
Columbus, Ohio.
Weller Mfg. Co., 1820-56 N. Kostner Ave.,
Chicago, Ill.

BELTING, SILENT CHAIN

Morse Chain Co., Ithaca, N. Y.
Weller Mfg. Co., 1820-56 N. Kostner Ave.,
Chicago, Ill.

BINS (Coke and Coal)

Jeffrey Mfg. Co., 958 N. Fourth St.,
Columbus, Ohio.
Weller Mfg. Co., 1820-56 N. Kostner Ave.,
Chicago, Ill.

BIT SHARPENERS

Ingersoll-Rand Co., 11 Broadway,
New York City.

BLASTING POWDER

Hercules Powder Co., 934 King St.,
Wilmington, Del.

BLASTING SUPPLIES

du Pont Powder Co., The E. I.,
Wilmington, Del.
Hercules Powder Co., 934 King St.,
Wilmington, Del.

BLOWERS' CENTRIFUGAL

Ingersoll-Rand Co., 11 Broadway,
New York City.

BLOWPIPES, Brazing, Carbon Burning, Cutting, Lead Burning, Welding, and Cutting

Oxweld Acetylene Co., 30 E. 42nd St.,
New York City.

BOILER MOUNTINGS

The Lunkenheimer Co., Cincinnati,
Ohio.

BREAKERS (Construction and Machinery)

Jeffrey Mfg. Co., 958 N. Fourth St.,
Columbus, Ohio.
Wilmet Engineering Co., Hazleton,
Pa.

BRIQUETTING MACHINERY

Jeffrey Mfg. Co., 958 N. Fourth St.,
Columbus, Ohio.

BUCKETS (Elevator)

Jeffrey Mfg. Co., 958 N. Fourth St.,
Columbus, Ohio.
Weller Mfg. Co., 1820-56 N. Kostner Ave.,
Chicago, Ill.

CABLES (Connectors and Guides)

American Mine Door Co., Canton,
Ohio.

CABLEWAYS

Jeffrey Mfg. Co., 958 N. Fourth St.,
Columbus, Ohio.
Lidgerwood Mfg. Co., 96 Liberty St.,
New York City.

CAGE (Safety Appliances)

Connellsville Mfg. & Mine Supply Co.,
Connellsville, Pa.
Mining Safety Device Co., Bowerston,
Ohio.

CAGERS, AUTOMATIC

G. M. Johnson Mfg. Co., Jeannette,
Pa.
Mining Safety Device Co., Bowerston,
Ohio.

CAGES

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Connellsville Mfg. & Mine Supply Co.,
Connellsville, Pa.
G. M. Johnson Mfg. Co., Jeannette, Pa.
Lidgerwood Mfg. Co., 96 Liberty St.,
New York City.
Traylor Engineering & Mfg. Co.,
Allentown, Pa.

CARBON BURNING APPARATUS

Oxweld Acetylene Co., 30 E. 42nd St.,
New York City.

CARBON RODS AND PASTE FOR WELDING

Oxweld Acetylene Co., 30 E. 42nd St.,
New York City.

CAR HAULS

Jeffrey Mfg. Co., 958 N. 4th St.,
Columbus, O.
Weller Mfg. Co., 1820-56 N. Kostner Ave.,
Chicago, Ill.

CAR WHEEL BEARINGS

Hyatt Roller Bearing Co., Harrison,
N. J.

CASTINGS

Jeffrey Mfg. Co., 958 N. Fourth St.,
Columbus, Ohio.

CHAIN RAIL CAR HAULS

G. M. Johnson Mfg. Co., Jeannette,
Pa.

CHAINS

Jeffrey Mfg. Co., Columbus, Ohio.
Morse Chain Co., Ithaca, N. Y.
Weller Mfg. Co., 1820-56 N. Kostner Ave.,
Chicago, Ill.

CHAINS, AUTOMOBILE ENGINE

Morse Chain Co., Ithaca, N. Y.

CHAINS, COAL CUTTING

Goodman Mfg. Co., Halsted St. and
48th Pl., Chicago, Ill.

CHAINS, DRIVE

Morse Chain Co., Ithaca, N. Y.

CHAINS, FRONT END

Morse Chain Co., Ithaca, N. Y.

CHAINS, OILING

Morse Chain Co., Ithaca, N. Y.

CHAINS, POWER TRANSMISSION

Jeffrey Mfg. Co., 958 N. 4th St.,
Columbus, O.
Morse Chain Co., Ithaca, N. Y.
Weller Mfg. Co., 1820-56 N. Kostner Ave.,
Chicago, Ill.

CHAINS, SILENT (Rocker-Joint)

Morse Chain Co., Ithaca, N. Y.

CHAINS, SLING

Morse Chain Co., Ithaca, N. Y.

CHAINS, SPROCKET WHEEL

Jeffrey Mfg. Co., 958 N. 4th St.,
Columbus, O.
Morse Chain Co., Ithaca, N. Y.
Weller Mfg. Co., 1820-56 N. Kostner Ave.,
Chicago, Ill.

CHEMICALS

Roesler & Haasler Chemical Co.,
709-717 Sixth Avenue, New York.

CHEMISTS

Hunt, Robt., Company, Insurance Exchange,
Chicago, Ill.

CLAMPS (Trolley)

Ohio Brass Co., Mansfield, Ohio.

CLUTCHES

Connellsville Mfg. & Mine Supply Co.,
Connellsville, Pa.
Weller Mfg. Co., 1820-56 N. Kostner Ave.,
Chicago, Ill.

COAL COMPANIES

General Coal Company, Land Title Bldg.,
Philadelphia, Pa.
Lehigh Coal & Navigation Co., Philadelphia, Pa.
Thorne, Neale & Co., Philadelphia, Pa.
Bertha-Consumers Company, Chamber of
Commerce Bldg., Pittsburgh, Pa.

COAL CRUSHERS

Connellsville Mfg. & Mine Supply Co.,
Connellsville, Pa.
Jeffrey Mfg. Co., 958 N. Fourth St.,
Columbus, Ohio.
Weller Mfg. Co., 1820-56 N. Kostner Ave.,
Chicago, Ill.

COAL CUTTERS

Goodman Mfg. Co., Halsted St. and
48th Pl., Chicago, Ill.
Ingersoll-Rand Co., 11 Broadway,
New York City.
Jeffrey Mfg. Co., 958 N. Fourth St.,
Columbus, Ohio.
Weller Mfg. Co., 1820-56 N. Kostner Ave.,
Chicago, Ill.

COAL HANDLING MACHINERY

Jeffrey Mfg. Co., 958 N. Fourth St.,
Columbus, Ohio.
Lidgerwood Mfg. Co., 96 Liberty St.,
New York City.
Weller Mfg. Co., 1820-56 N. Kostner Ave.,
Chicago, Ill.

COAL LOADERS

Jay Machine Co., Union Trust Bldg.,
Pittsburgh, Pa.

COAL MINING MACHINERY

Goodman Mfg. Co., Halsted St. and
48th Pl., Chicago, Ill.
Ingersoll-Rand Co., 11 Broadway,
New York City.
Jeffrey Mfg. Co., 958 N. Fourth St.,
Columbus, Ohio.
Weller Mfg. Co., 1820-56 N. Kostner Ave.,
Chicago, Ill.

COAL MINING PLANTS

Ingersoll-Rand Co., 11 Broadway,
New York City.
Jeffrey Mfg. Co., 958 N. 4th St.,
Columbus, O.

COCKS (Locomotive, Cylinder and Gauge)

The Lunkenheimer Co., Cincinnati,
Ohio.

COMPRESSORS, AIR

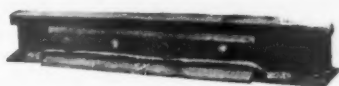
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Ingersoll-Rand Co., 11 Broadway,
New York City.

COMPRESSORS, MINE CAR

Ingersoll-Rand Co., 11 Broadway,
New York City.

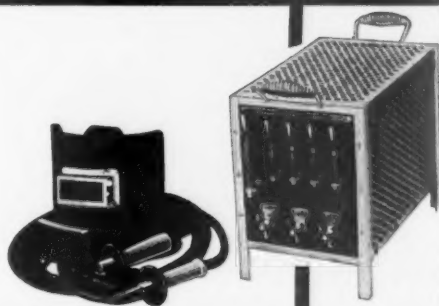
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Traylor Engineering & Mfg. Co.,
Allentown, Pa.



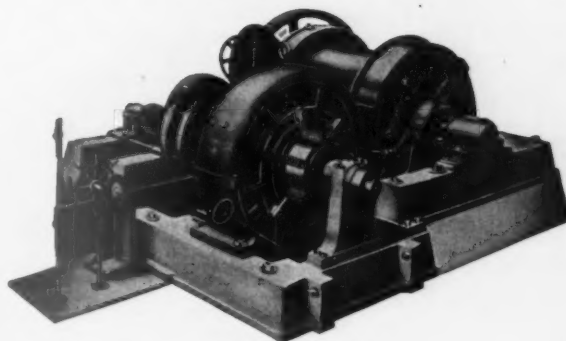
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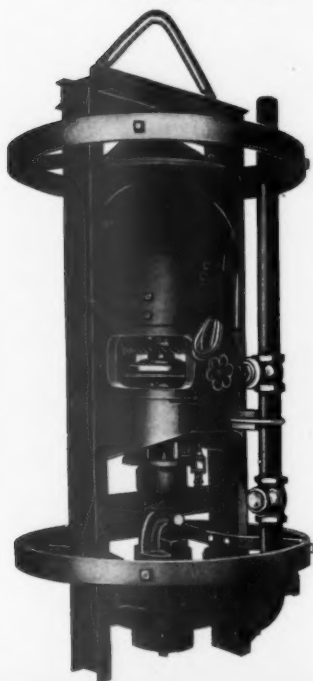
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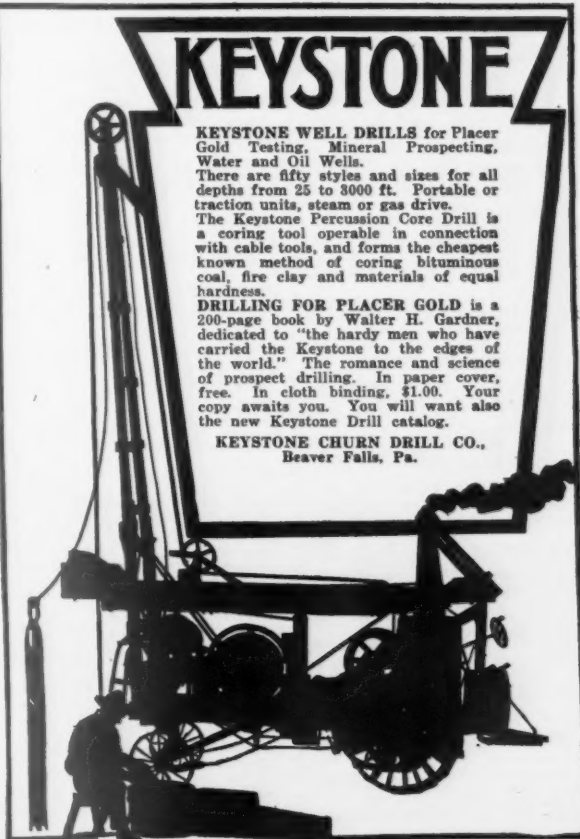
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Wilmet Engineering Co., Hazelton, Pa.

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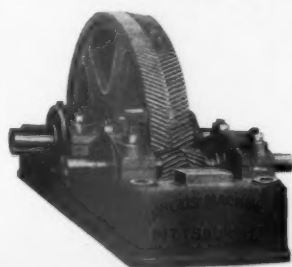
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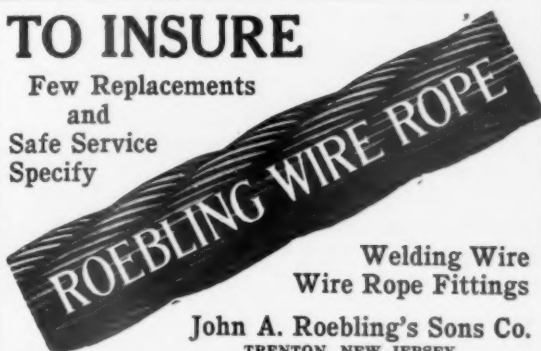
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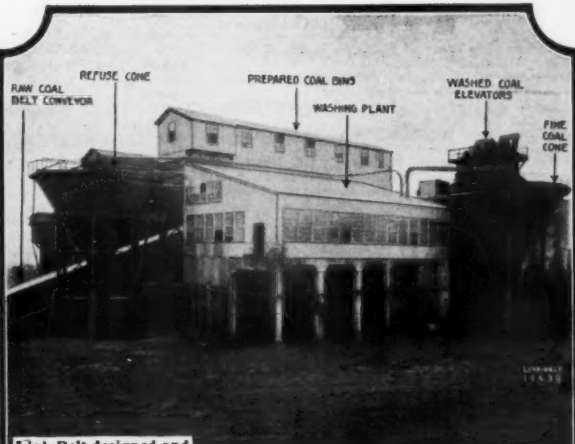
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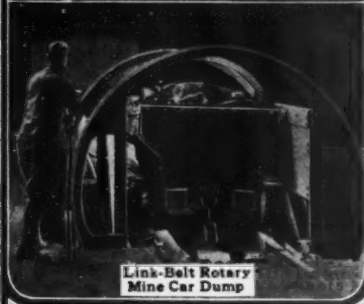
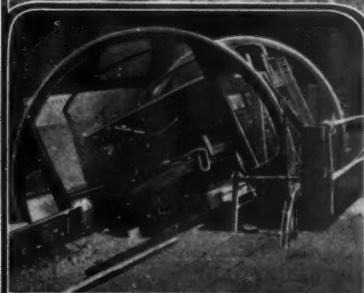
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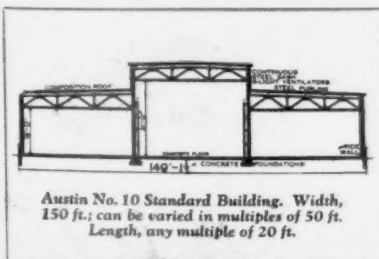
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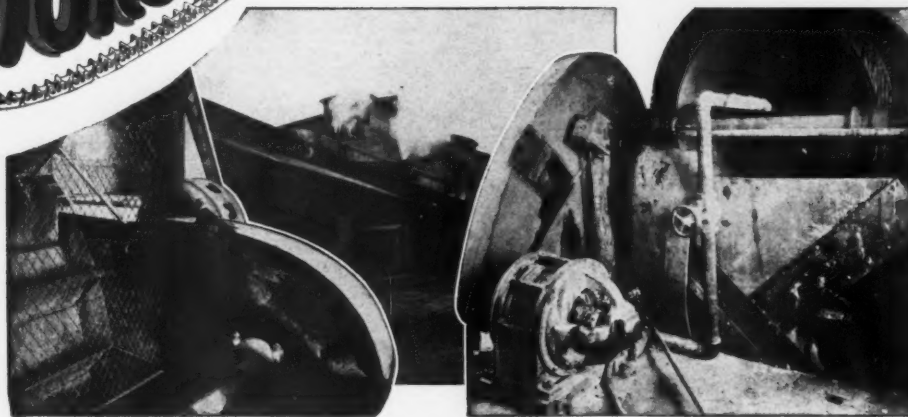
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